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ABSTRACT

A collection of nine papers selected from those presented at the Special Conference on Instructional Technology (San Antonio, Texas, December 1-4, 1970) concern instructional technology for personnel training. Included in the collection are papers on demonstration projects in instructional technology (purposes, planning, and problems), instructional technology as defined and applied to personnel training, packaging parental materials for teaching self help skills to multiply handicapped children, a new media specialists training program, accountability in teacher preparation, teacher-directed inservice education (a change agent for instructional technology), long distance microtraining, and packaged self instruction materials for isolated teachers of the handicapped. Other collections of papers from the conference are available as EC 031 520 (Adoption of Technology and Program Development), EC 031 522 (The Improvement of Special Education through Instructional Technology), EC 031 523 (Communication, Production, and Dissemination of Instructional Technology), and EC 031 524 (The Use and Evaluation of Instructional Technology in the Classroom). (CD)

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PREFACE

Instructional Technology for Personnel Training is a collection of nine papers selected from those presented at the Special Conference on Instructional Technology, San Antonio, Texas, December 1 - 5, 1970. These papers were collected and compiled by The Council for Exceptional Children, Arlington, Virginia. Other collections of papers from the Conference are available from the ERIC Document Reproduction Service. Other collections announced in this issue of Research in Education may be found by consulting the Institution Index under Council for Exceptional Children or the Subject Index under Exceptional Child Education. Titles of these other collections are:

The Improvement of Special Education through Instructional Technology
The Use and Evaluation of Instructional Technology in the Classroom
Communication, Production, and Dissemination of Instructional Technology
Adoption of Technology and Program Development

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Demonstration Projects in Instructional Technology;

Purposes, Planning, and Problems

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In this paper, I plan to present some notions on the rationale, design, and potential problems inherent in demonstration projects in the application of instructional technology to the education of handicapped students. In doing so, I have drawn upon experiences, some more pleasant than others, with such projects.

Let me begin by presenting a brief film which was produced two years ago at the National Technical Institute for the Deaf. This film was produced early in a project with computer-assisted instruction. At that time, I had a direct involvement with the project. I would like to think that I have learned from the project.

(show film -- Computerized Multimedia Instruction)

What is the role of the demonstration project in the educational process? Does it have any particular importance in introducing technology to the instruction of handicapped children?

Without laboring the point, I would like to draw our attention to the fact that within education, there remains an enormous gulf between what is known about effective instruction and instruction as it is currently practiced. The practitioner, if he dares, tells the researcher to address himself to the real world of education. The researcher on the other hand accuses the practitioner of being unresponsive to the findings of educational research. And so the impasse remains.

The demonstration project should serve to bridge the gap between knowledge and educational implementation, as a buffer, so to speak, between research and its related theory, and implementation in the instructional setting. The purpose of the demonstration project should be to serve as a catalyst between research and accepted educational practice. The demonstration project adds an element of accountability to education. If research has legitimacy within education, then the educational researcher has a responsibility to demonstrate the worth of his work. By the same token, the practitioner, given a demonstration of the worth of an idea, has the responsibility to give serious attention to the idea.

Unfortunately, the demonstration project often is little more than an extension of applied research or, on the other hand, a convenient label for an extension of educational services. This can be influenced by setting, funding sources, and the orientation of the projects' personnel. We need a much tighter definition of the demonstration project.

There is a particular need for well-conceived demonstrations of applications of technology to education. Instructional technology can lead to many benefits to special education, but at the same time poses many persistent questions, questions which can only be answered through extensive, well-conceived demonstration. For example, with reference to computer-assisted instruction, we are confronted with considerations on how to reorganize the classroom for individualized instruction, costs associated with computer-based systems, the need for training and retraining special personnel, and gaining emotional acceptance by instructors.

Even more basic, the educator continues to need more assurance that the application of instructional technology in its various forms will lead to larger numbers of children learning faster, better, or both.

I would like now to turn to a series of questions which might be posed in the planning of a demonstration project in instructional technology. The successful demonstration project is as

much the result of good design as is the design which goes into good research.

1. Is the research evidence convincing?

The demonstration project should be based on solid research evidence. The research upon which the demonstration is based should be so overwhelmingly supportive of a given practice that the research confidence level is tantamount to proof. This condition places onus both on the initiator of the demonstration project and upon the researchers who have conducted the research upon which the demonstration is based.

A related consideration in the demonstration^{of} instructional technology is the question of whether the technology is in fact adequate to the demands being placed upon it within the demonstration. This is particularly germane to projects which introduce advanced technologies such as those involving television or computers.

2. Is there a strong and continuing base of support for the project?

Demonstration projects usually demand more prolonged support than research projects. Unlike the typical experimental investigation, the demonstration project must adapt itself to the school year, and to groups of personnel and to students for prolonged periods. Additionally, because the demonstration is usually concerned with educationally significant changes in

children and not merely tightly defined behavioral changes associated with conventional research, the demonstrated procedures must extend over extended durations.

3. Are sufficient time and resources allotted to preparation of personnel and preparation of materials?

The demonstration of applications of instructional technology requires special resources, particularly in personnel and materials. Technical staff must be recruited or trained; materials as a rule must be developed. Both time and cost are involved in this process.

4. Does the demonstration simulate actual instructional conditions?

The initiators of the demonstration project must continually remain aware that their primary audience consists of instructors and administrators. To the degree possible, they must approximate actual educational conditions. This often requires that they take the more difficult path, seeking not controlled but real conditions.

For example, the apparent success of a project is facilitated when we gather only highly supportive teachers and administrators. Yet we must ultimately demonstrate our concept to skeptics. Why not introduce skeptics to the project also?

5. Are representatives of those bodies to whom the demonstration is directed involved in the project?

Unless instructors and administrators are part of the demonstration and more important, feel a part of the project, it is unlikely that the project will stimulate implementation in ongoing educational practice.

6. Are provisions built into the demonstration which will assure general awareness of the project?

Many otherwise worthwhile demonstration projects have failed because of inadequate dissemination activities. Dissemination activities may take many forms, ranging from direct involvement of personnel from a broad geographic range, through workshops, to effective though rarely used advertising techniques. Indeed, since it is the basic purpose of demonstration to sell an idea, to be persuasive, the project must be just that. Probably the least effective means of disseminating information on projects are the common final reports and convention papers.

I would like to take just a moment to enumerate these six principles once again.

1. Before initiating the demonstration, assure yourself that the supporting research evidence is convincing.

2. Undertake the project only after assurance of a strong and continuing base of support.

3. Build in adequate time and resources for the training of personnel and preparation of materials.

4. Design the project to simulate actual instructional conditions.

5. Build in guarantees that instructors and administrators have a real involvement in the project.

6. Give major attention to attracting attention to the project.

In introducing this paper, I had indicated that I would say something about the problems associated with demonstrations of instructional technology. I then showed a short film which described a project early in its development. Let me say a word about that project after close to three years. In doing so, I would like to make reference to the six principles I suggested a few minutes ago.

First, you may recall that the film referred to computerized multi-media instruction. After initiating the project, we began to have second thoughts about the concept of multi-media. We discovered that we really knew little about what media to apply under different learning conditions. In short, we were attempting to demonstrate a concept before the facts were in. We have since reverted to the less imaginative but considerably more practical concept of computer-assisted instruction.

Second, when we initiated this project, there were many projects already underway across the country which were demonstrating applications of computer-assisted instruction. Some of these

projects in the meantime have been forced, because of termination of funding, to cut back and in some cases to discontinue their projects, thereby diminishing the effect of their efforts. Some of these projects might have been better served if provisions had been made earlier for local resources to be phased in as the federal contribution was withdrawn.

Third, after almost three years of effort on the Mathematics Diagnostic System, we find ourselves continuing to evaluate and revise the system. This one program has taken considerably more time and effort than I had anticipated three years ago. We do not yet have a system which we can say has been successfully demonstrated.

Fourth, I had expected that instructors would be anxious to become involved with the project. This supposition proved to be unfounded, and for several good reasons, among which was the competition for the time and attention of instructors who were already absorbed in other equally challenging innovative concepts.

In conclusion, I would just like to reiterate that the demonstration of instructional applications of instructional technology to teachers and administrators of programs in special education is essential to widespread implementation. However, to be successful, the demonstration project requires care in planning, care in conducting and a great deal of persuasiveness.

Instructional Technology: Definition and Application to Personnel Training in Special Education

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In the preparation of the presentations for this conference, it was suggested that we include where possible reference to the Commission on Instructional Technology's report entitled: To Improve Learning, (1970). An attempt has been made to do this by utilizing some of the points made and the definitions developed in this report. In the first part of this presentation we will examine two definitions of Instructional Technology. Only a short time will be spent on formal definitions because these are only important to the extent that they guide applications. Some implications of Instructional Technology will be discussed by making a reference to specific practices being employed in a project at Utah State. This project, funded by the U. S. Office of Education, has the following objectives.

- (1) to prepare and validate multi-media instructional programs for use in the following areas.
 - (a) in-service training programs for personnel working with exceptional children. This would also include university extension programs.
 - (b) university undergraduate and graduate training programs for training personnel for working with exceptional children.
 - (c) community training programs. Included in this area would be training programs for parents of exceptional children and volunteers engaged in projects involving the treatment of exceptional children.
- (2) to facilitate the dissemination of information and material concerned with the application of instructional technology to the training of personnel (including parents) involved with the treatment of exceptional children.
- (3) to provide an interdisciplinary program which prepares graduate in one specific area of exceptionality and in instructional technology.

The project is still in the first year of operation, however, both the training program and the preparation of multi-media programs are well under way.

The Commission's report (1970) on instructional technology makes reference to two basic definitions. The first states, "In its more familiar sense it means the media born of the communications revolution which can be used for instructional purposes along side the teacher, textbook, and blackboard." (p. 5) In terms of the state of the field, the report concludes

that this particular definition represents things as they stand at the present. However, the report makes reference to a second definition.

The second, and less familiar definition of instructional technology goes beyond any particular medium or device. In this sense, instructional technology is more than the sum of its parts. It is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, employing a combination of human and non-human resources to bring about more effective instruction. (p. 5)

It is this definition which is being used in the Utah State Project.

It might clarify the basic difference between these two definitions if we consider two interpretations of the term "technology." In the first definition, technology refers to the media, to the communications equipment and to their use. In the second definition, the term technology is to some extent synonymous with the term "engineering." In this form it implies a much more comprehensive approach to educational problems than to the rather narrow interpretation involved in the first definition.

Reproducibility

One of the major implications of the second definition is summed up in the statement by the commission, "The commission is convinced that technology properly employed could make... instruction more scientifically based." (p. 34) Let us now look at one way this scientific base can be achieved, that is, by the reproducibility of the instructional environment that is provided by the application of instructional technology. Without such reproducibility, validity studies would have little practical purpose. Instructional technology, through reproducibility, allows us to put the educational environment under the microscope. What is the purpose of following up our students and critically evaluating their performance in the field, if we cannot reproduce and analyze the instructional environment in which they participated prior to entering the field. Without this reproducibility we are usually forced into making some dichotomous statement such as "it worked" or "it did not work." Little in education is so clear cut. Most systems have effective and ineffective elements and improvement is usually the result of successive culling of the ineffective units and replacing them with effective units. Only if we have the facility to reproduce such an instructional environment change selected units and repeat the modified program can we form a solid basis for progressively improving instruction. Stolurow (1962) places stress on this property of instructional technology and notes that it has the possibility of providing reproducible conditions which have hitherto been impossible in classroom investigations.

Objectives

Let us now look at the difference between the two definitions in terms of field application. According to definition number one an instructor might believe

he is using instructional technology because he uses some media such as 35 mm. slides, but according to definition number two he'll have to give us a little more information before we can say he believes in instructional technology. To go a little further, let us ask the instructor why he is using slides. "Oh, I'm using slides because I want to get my students to understand the medical classifications of mental retardation." And what do you mean by that? "Well, you know, they've got to be a lot more familiar with this area. It's important." You may see now one of the first problems -- the use of slides, while it adds a certain reproducibility to the environment, a critical aspect in reproducibility is going to be the consistency and the lack of ambiguity of the objectives in the instructional process, and this our professor doesn't appear to have.

Let us now consider some objectives which might remove some of the ambiguity of this particular program.

- (1) When presented with a list of common syndromes, pictures accompanying them, to nominate those syndromes where there is a possibility of genetic problems and therefore a need for genetic counseling.
- (2) Personnel viewing this unit will, upon its completion be able to match selected clinical tests with major syndromes these tests are used to diagnose.
- (3) Upon completion of this unit, personnel will be able to visually match a photo of a major symptom with each syndrome.
- (4) All personnel viewing this unit will, upon its completion, be able to identify nine out of ten pictures which have not been included in the instructional sequence as belonging to one of five major syndromes.

These objectives were taken from a slide-sound program on clinical syndromes in mental retardation under development by staff of the Utah State Instructional Technology project.

You can see that these objectives are not defined in the rather nebulous terms previously used. They make reference to specific and identifiable outcomes of instruction expressed in terms of behaviors we expect the students to demonstrate at the end of the program.

Feedback

The report on instructional technology makes the following point. "Many people see instructional technology primarily as a way of recording, storing, transmitting, distributing, and displaying material. But equally important is its capacity for response and feedback and for reinforcement of learning." (p. 30) Feedback is one of the distinguishing elements of the second or systems definition of instructional technology.

Two forms of feedback have been classified as developmental field testing and formal field testing. Michael Scriven (1967) uses the terms "formative" and "summative" to describe these same two processes. In the developmental or formative evaluation it is the learning process which is being studied. One or two sample members of a target population are studied in a flexible setting which will allow for as much feedback as possible. This procedure is repeated until all modifications possible under such conditions are achieved. It is then

that the summative evaluation takes place. In this evaluation the program is field tested using normal class sizes under regular field conditions. It is the formative testing which has been sorely neglected. Unfortunately, most of our evaluation instruments such as standardized achievement tests are designed for use in summative evaluation and we have a rather sparse repertoire of research tools to assist us in developmental or formative evaluation. Cronbach (1963) has noted that "evaluation, used to improve the course while it is still fluid, contributes more to improvement of education than evaluation used to appraise a product already on the market."

Packaging

The report on instructional technology makes reference to the fact that "technology does not have to move people; it transmits the impact of people." (p. 34) A good example of this point is a multi-media package. A multi-media package we are presently working on is a package to train parents of pre-school retarded children. It is planned to field test the preliminary form of this package at the end of this year. The package consists of slides, audio tapes and a monitor's manual for use by a public health nurse. The skill areas to be covered in the first field testing will be behavioral management and self-care skills. The package is so designed that both the monitor, a public health nurse, and the students, parents of pre-school handicapped children, will be programmed by the package. For the package to be fully effective the data has to show that when the package is forwarded to a specific monitor that monitor, working from the material in the monitor's manual can set up the instructional program, train the parents, and achieve the results set forth in the program. In this case, of the parent training program the package will be validated in terms of changes in specific behaviors of the handicapped children of the parents. The package that will function in this form will achieve considerable savings in terms of the effective use of professional personnel.

Another example of the use of a multi-media package is in the introductory training program for the doctoral students entering the interdisciplinary training program associated with the USU project on instructional technology. These students enter the program sometime during summer and are put straight into a multi-media package that we have been using with considerable success entitled "Principles and Practices of Instructional Technology." (1969) This package consists of a student workbook, a monitor's manual and a series of audio-tapes and filmstrips. The student may work through the package individually or in a small group setting. When the students have finished the package or are well into it they meet with the project director to start setting up specific program plans. At this stage the professor can make much more effective use of his time because the student now has a basic understanding of the principles and terminology of instructional technology.

Entering Competencies

While the notion of behavioral objectives has received considerable emphasis since the publication of Mager's (1962) book, a related aspect, that of entering competencies has not received the same attention. Scandura (1966) even suggests that the entering competencies a student has may be more im-

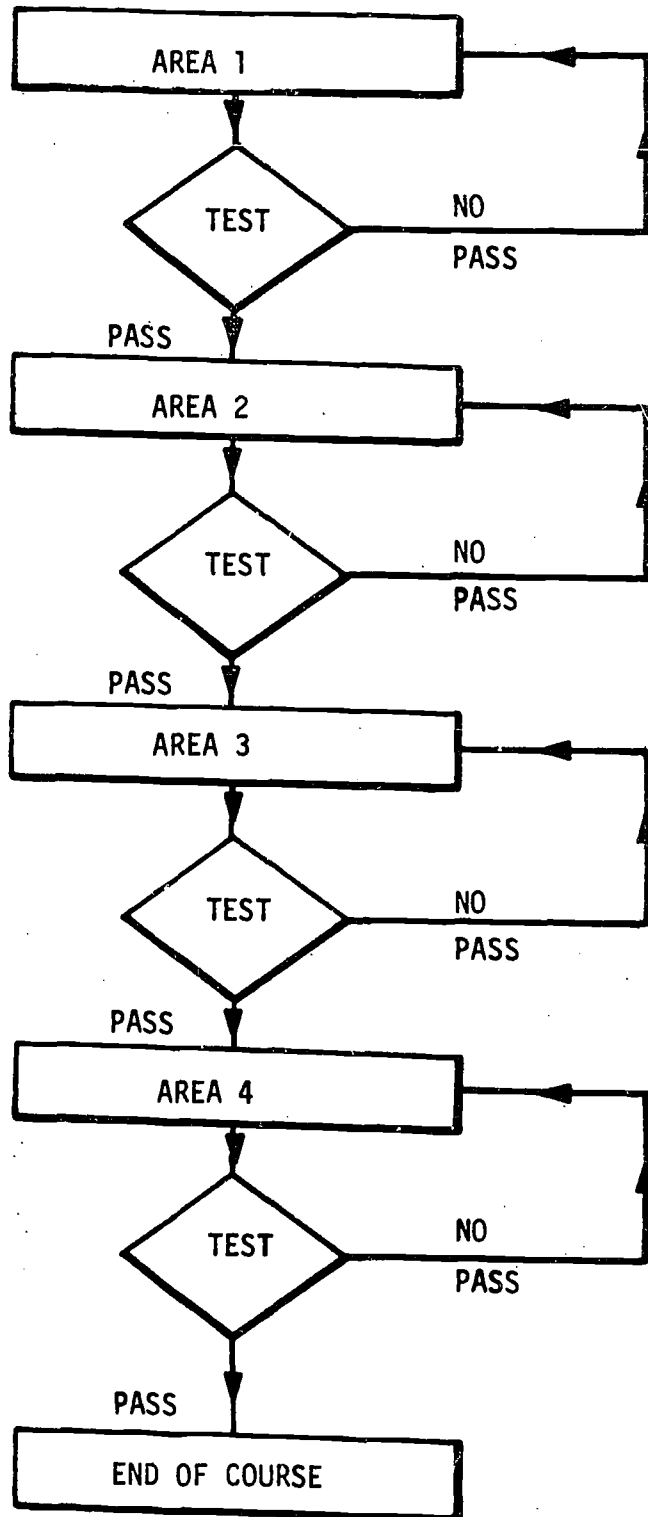
portant than such principles as reinforcement. Prerequisite skills are important for two reasons. One is that they are necessary in order to define who will enter the program and for this reason they must be the most critical elements in the description of a target population. Prerequisite skills are also important in determining which elements of the instructional program the students need to take. When a course is structured so that students need only take those elements that they are deficient in, there must be a considerable saving in instructional resources. In-service and pre-service university courses provide a fertile area for the utilization of entering competencies.

University Courses

In applying instructional technology to the in-service courses in the Special Education Department at Utah State two models for structuring in-service courses were considered. The first was the linear approach in which all students start at a given point and move unit by unit through the same sequence. Each student progresses at his own rate and cannot move to the next unit until he has passed a criterion-test which occurs at the end of the previous unit. This linear model has been shown to be effective and has been reported on by Keller (1968), Lloyd and Knutzen (1969), and McMichael and Cory (1969). In reviewing the linear model it became obvious that courses in which each unit of the course was dependent upon a previous unit were well suited to this model. Subject areas such as physics and mathematics are areas that can more readily be translated into the interdependent sequence suited to the linear model.

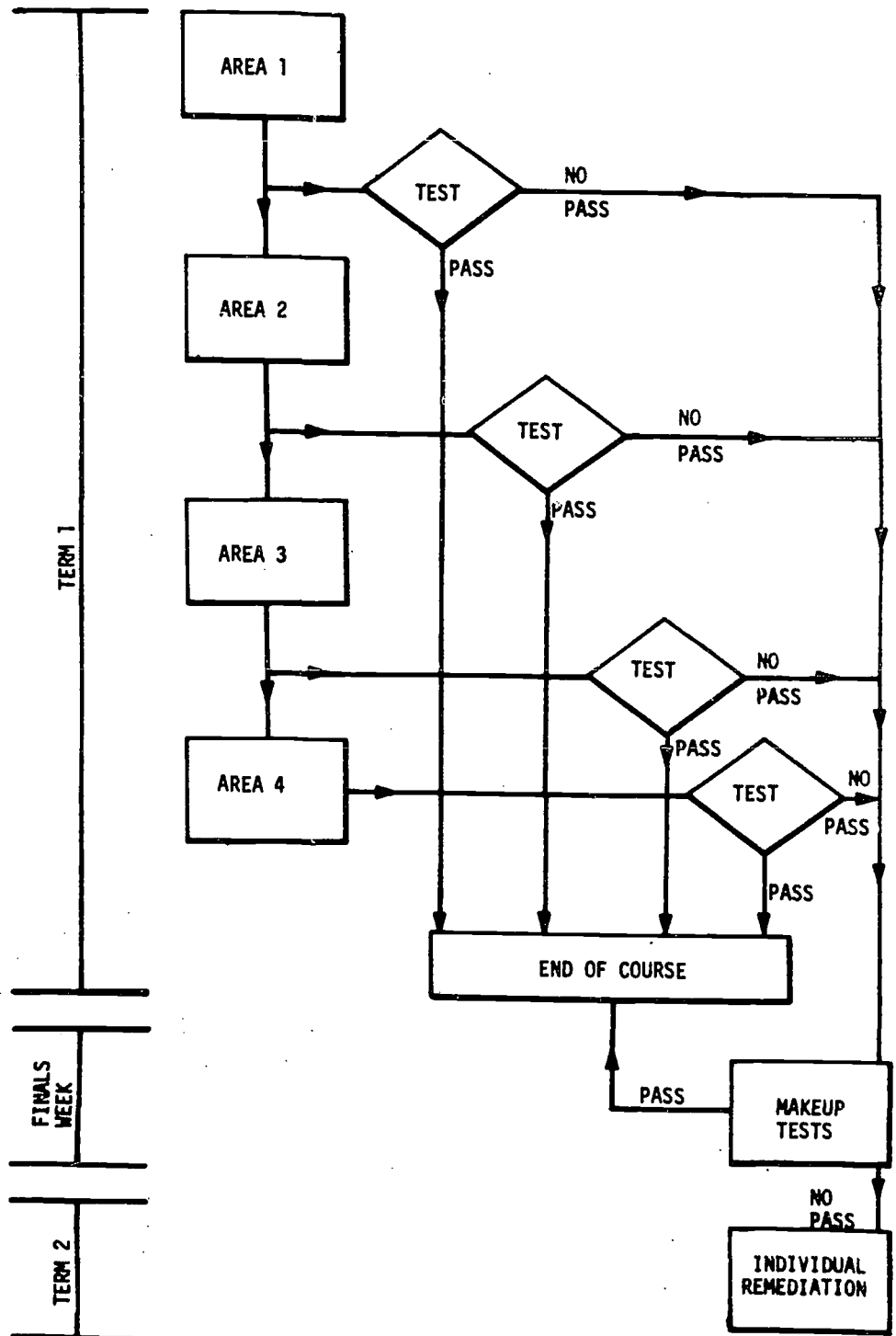
In surveying the subject matter of the first Special Education course selected for programming, "Diagnosis and Treatment of Learning Difficulties," it was found that the material could be divided into four basic units, but only one unit seemed to be a prerequisite to the other units. It became obvious that we were facing a problem similar to that encountered by early researchers in programmed learning -- the linear model while applicable to certain subject areas, is not the answer for all situations. It would appear then that the selection of a model must be a function of subject matter and course purposes. In view of the fact that the subject matter we were concerned with was not wholly linear in nature and the courses were to be taught on an in-service as well as a pre-service basis which further limited application of the linear model, it was necessary to adapt the linear model and restructure it to meet our special needs. The resultant model has been termed "modular."

The modular model does not require a student to pass a criterion-test before moving to the next unit unless data shows this to be necessary. The student must, however, reach criterion in each unit to pass the course. The modular model will allow for multiple entry and exit from a course. If on the basis of a diagnostic pre-test it is determined that the student is already at criterion level in certain units, then the student need not undertake such units. This multiple entry and exit provision has obvious advantages in in-service programs where students have a wide spread of entering competencies.



Linear Model

Figure 1



Modular Model

Figure 2

Criterion-Referenced Evaluation

Associated with the emphasis on behavioral objectives is the notion of evaluating students on a criterion-referenced basis rather than a norm-referenced basis. Glaser (1963) was one of the first to draw attention to the distinction between norm-referenced and criterion-referenced evaluation to students. Norm-referenced evaluation is concerned with evaluating the student's performance by comparison with performance of other students. Grading on the curve in college classes is a norm-referenced approach because a student is evaluated on how his performance compares with that of other students. In criterion-referenced evaluation the student is evaluated in terms of some specific learning task, some standard which is independent of his classmates performance. Glaser states,

the term criterion when used in this way does not necessarily refer to end-of-course behavior. Criterion levels can be established at any point in instruction where it is necessary to obtain information as to the adequacy of an individual's performance. The point is that specific behaviors implied at each level of proficiency can be identified and used to describe the specific tasks a student must be capable of performing before he achieves one of these knowledge levels.

Briggs (1970) notes that

when objectives are well defined, and when clear, reasonable performance standards are set for appropriate minimum test performance, it is possible... if all students are capable and hard working, or can meet the standards, all can pass. This fact can then be recognized avoiding the arbitrary (false) failures that occur under the "curve".

Under a grading program that stresses averages and norm-referenced measures, it is possible to send teachers into the classroom with grades of C's and D's in critical areas. If we consider what we are teaching in our courses important in the makings of an effective teacher, it would seem logical that we should not allow a system to exist in which people obviously not competent in a specific area can still achieve a teaching credential. Associated with criterion-referenced evaluation of future teachers is the development of competency based teacher preparation programs which depend upon the use of testing procedures in which the student is evaluated in terms of how he or she meets certain specific criteria determined to be important for effective functioning as a teacher and not on some standards which are a function of the performance of the student teacher's classmates. The approach to microteaching developed at the Far West Regional Lab is a good example of competency based teacher education. (Borg, et. al. 1970).

Summary

Two definitions or approaches to instructional technology have been discussed. One definition centers around the involvement of media in instruction. The other definition sometimes termed the systems definition involves the

engineering of instruction which, while involving media, also has other elements. Five of these elements were presented and exemplified. While all these elements do not have to be present in every instructional technology program, they do represent the type of activities involved in the systems approach to instructional technology.

These five elements (not including media), which could be involved in instructional technology are behavioral objectives, feedback, a potential for packaging, entering competencies, and competency based evaluation of students.

This list is far from complete and reference could have been made to simulation, to the developing area of task and concept analysis, and to the facility for contingency management provided by some of the previously mentioned elements of instructional technology.

BIBLIOGRAPHY

- Borg, W. R., et. al. The Minicourse, a microteaching approach to teacher education. Beverly Hills, Calif.: Macmillan, 1970.
- Briggs, Leslie J. Handbook of procedures for the design of instruction. Pittsburg: American Institutes for Research, 1970.
- Commission on Instructional Technology. To improve learning. Washington: U. S. Government Printing Office, 1970.
- Cronbach, L. J. Course improvement through evaluation. Teachers College Record, 1963, 64, 672 - 683.
- Glaser, R. "Instructional technology and the measurement of learning outcomes: Some questions." American Psychologist. 1963, 18, 519 - 521.
- Keller, F. S. "Good-bye teacher." Journal of Applied Behavior Analysis, 1968, 1, 79 - 89.
- Lloyd, K. E. and Knutzen, N. J. A self-paced programmed undergraduate course in the experimental analysis of behavior. Journal of Applied Behavior Analysis, 1969, 2, 125 - 133.
- Mager, R. Preparing Instructional Objectives. Palo Alto: Fearon, 1962.
- McMichael, J. S. and Corey, J. R. Contingency management in an introductory psychology course produces better learning. Journal of Applied Behavior Analysis, 1969, 2, 79 - 83.
- Principles and Practices of Instructional Technology (a multi-media program) Palo Alto: General Programmed Teaching, 1969.
- Scandura, J. M. Teaching - technology or theory. American Educational Research Journal. 1966, 3, 139 - 146.
- Scriven, M. The methodology of evaluation. Perspectives of Curriculum Evaluation. AERA Monograph Series, Chicago: Rand McNalley, 1967.
- Stolurow, L. M. Implications of current research and future trends. Journal of Educational Research, 1962, 55, 519 - 527.

"PACKAGING PARENTAL MATERIALS FOR TEACHING
SELF-HELP SKILLS TO PRESCHOOL MULTIHANDICAPPED CHILDREN"*

Wayne D. Lance**

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Expert opinion generally supports the position that early education for handicapped children is of paramount importance for later development of the child. Yet, when the primary handicap is compounded by the addition of a second, third, or even fourth handicapping condition, the multihandicapped child is often at a decided disadvantage because he and his parents may not be eligible for preschool training programs. Thus, the child who may require the most training in the way of early intervention may actually receive the least. As Hewett (1967) has indicated, the learning problems of multihandicapped children are not merely additive, but are somewhat unique, and programs require creative and innovative planning. The rubella epidemic which swept the country a few years ago left in its wake an estimated 20,000 to 30,000 single and multihandicapped infants (Calvert, 1969) and these figures reflect only a portion of the children in need of early education programs.

One can argue quite logically that parents ought to be assisted in assuming a major role in the early education of the handicapped child. Not only do they have a greater period of exposure to their child than is usually possible outside the home, but in addition parents receive the benefit of being able to see the immediate pay-off when the child learns a particular skill in relation to a need identified by the parent. Unfortunately, once a child is labeled with a handicap, e.g., "deaf" or "blind," parents may be misled into believing that their child has little capacity for learning (Calvert, 1967). The San Francisco Hearing and Speech Center found that many of their deaf-blind children receive minimal sensory stimulation in the home, however, they demonstrated that by changing parental behavior that children were exposed to an increased amount of auditory, visual, and tactual stimulation. (Calvert, 1967)

Self-help skills, e.g., toileting, eating, dressing and grooming, being so basic, are among the earliest concerns expressed by parents as being a necessary part of their handicapped child's training. It is not uncommon for preschool and primary school programs to require a minimal level of performance in the self-help area as a prerequisite to enrolling in a

* This project is supported by the Bureau of Education for the Handicapped, U. S. Office of Education and is a cooperative project involving staff from the Center for Research and Demonstration in the Early Education of Handicapped Children and the Northwest Regional Special Education Instructional Materials Center, both located at the University of Oregon.

** The author wishes to acknowledge the assistance of Abigail Koch, Patrick Grant, Earl Albertson, and Mary Bowman, Graduate Assistants, University of Oregon in the preparation of this paper.

formal school program. Thus, it often is incumbent upon the parent to provide this early training if the child is to become eligible for later training.

A review of programs designed to assist parents in dealing with their handicapped child reveals that the focus has generally been on providing guidance and counseling in order to foster attitude change in the parents rather than providing the parent with direct help in teaching selected skills. Parents may even be discouraged from training their child because of a misconception that only the "trained specialist" i.e., the special educator or occupational therapist has the skills necessary to work with the child (Barsch, 1969).

This particular project was designed after accepting the assumption that parents are capable of instructing their handicapped child in self-help skills and that educators have a responsibility for assisting parents in such tasks. Another assumption underlying the project is that a program should be packaged in such a manner that parents can be trained to work with their child with a minimum of direct intervention from an "expert." Thus, the emphasis is on developing a self-instructional program. While it has been reported that parents are only minimally influenced by research and materials (Barsch, 1969), this project is designed to move parents through a series of sequential steps requiring their active participation at each level rather than the mere passive reading of a manual or text.

This project, then, is designed to develop materials for instructing parents in teaching self-help skills to their preschool multihandicapped child in order to lessen the discrepancy between the existing behavior of the child and the behavior desired by parents. The project is funded by the Bureau of Education for the Handicapped, U. S. Office of Education and is a cooperative activity of the Center for Research and Demonstration in the Early Education of Handicapped Children and the Northwest Regional Special Education Instructional Materials Center, both located at the University of Oregon.

Objectives

1. To determine a basic core of self-help skills which parents consider relevant for preschool multihandicapped children.
2. To determine which of these skills are appropriate for parental instruction in a parent-child instructional setting.
3. To develop programs designed to instruct parents in teaching these selected skills to their children.
4. To field test and evaluate these programs and modify them accordingly.
5. To package and disseminate the programs through the Network of SEIMCs and Early Education Centers.

Procedures (Figure 1)

1. Survey of Parents: Because we did not wish to be presumptuous and assume that we could identify relevant self-help skills as perceived by parents without actually seeking this information directly from parents, we arranged to survey parents. Ninety-one parents have been interviewed or surveyed by mail at this time. Names of parents were obtained from several local and state day and residential schools. Whenever possible, information was obtained by personal interview with the parent; in other cases a form was mailed to parents. Parents were asked to rank toileting, eating, dressing, and washing and grooming in both order of "importance for your child to learn" and in "difficulty in teaching." They also responded to a number of specific tasks as to their child's ability to do the task (can do unassisted, cannot do but working on it, parent has tried to teach and failed, parent hasn't tried to teach). This data has not been tabulated at this writing except in the gross sense that we can state that as to order of importance, the majority of parents rank toileting number one, with eating, dressing, and washing and grooming following in that order. It appears from an eyeballing of the survey forms that this ranking will hold up regardless of the primary handicap except in the case of cerebral palsy children where eating skills may be considered the more important.*
 2. Review of Literature and Projects: Reports of projects involving parents and the teaching of self-help skills have been reviewed and this information is being utilized in developing the program. For example, several self-help tasks have been rather carefully analyzed and we intend to build on this base rather than replicating such activity.
 3. Selection and Analysis of Tasks: We are presently in the process of selecting the initial task, and will make a decision as soon as we complete step 1 (above).
 4. Select Delivery Mode: Some of the considerations with regard to the method of packaging have been implied in the above discussion. Basically, we are aiming for a self-instructional, parent-child centered procedure which paces a parent through a series of activities. Our initial pilot package will probably include slides correlated with a printed manual (program text format); a cassette tape is being considered as a third component of the package if an audio presentation is found to be necessary. The program will include a means for parents to determine the necessary prerequisite skills as entering behaviors for the task and will branch in order to allow for the various handicaps as they impinge upon the child's ability to perform the task.
- * As of this date, December 3, 1970, the data has not been completely analyzed and additional survey forms are still to be received. Information presented in this section is tentative and should not be quoted.

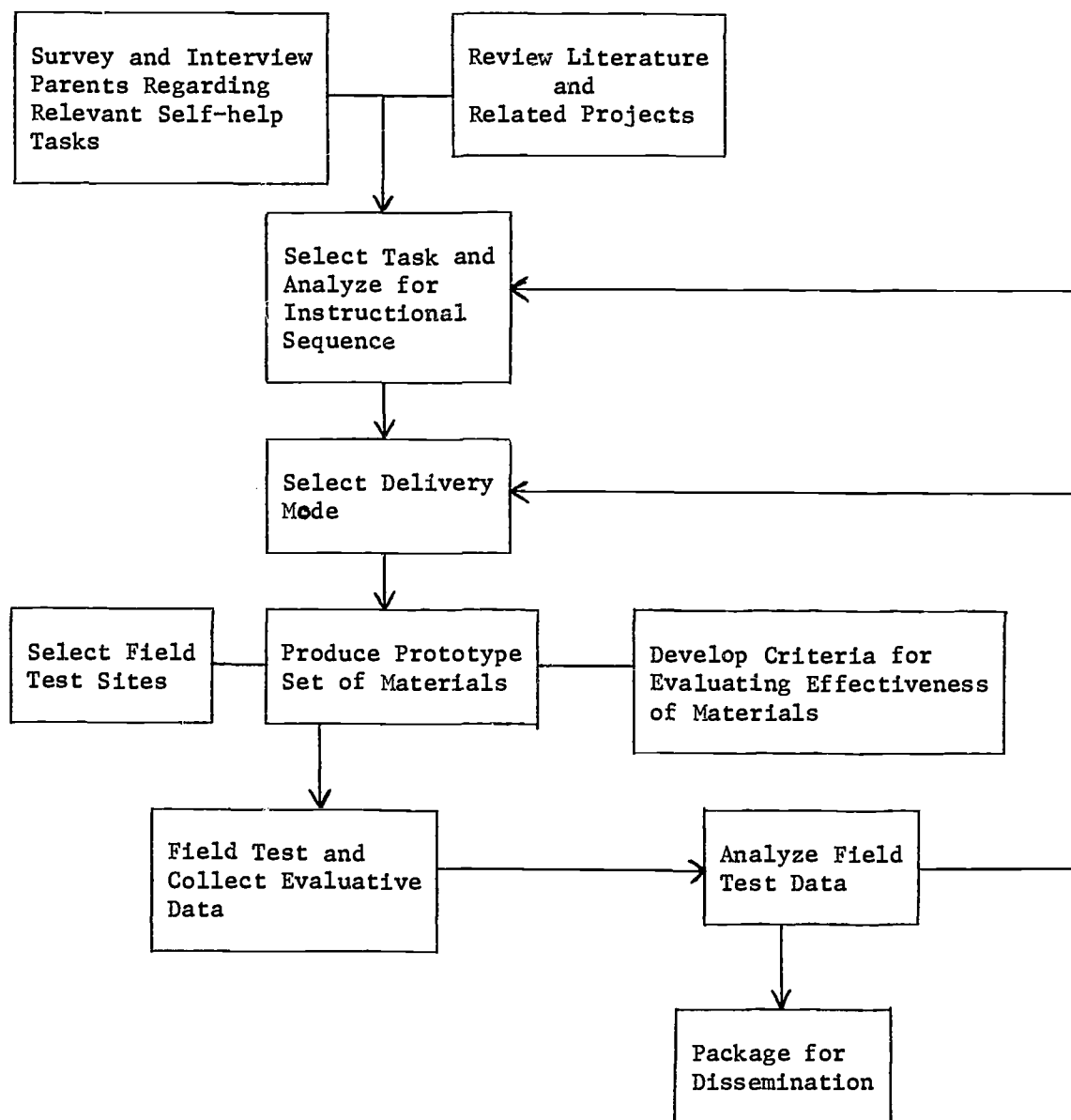
MATERIALS DEVELOPMENT AND TESTING

FIGURE I

5. Production and Field Testing: As indicated in Figure I, criteria for evaluating the effectiveness of the program will be established prior to testing of the program with a select group of parents and children. On the basis of this field testing, the program will be modified and finally packaged.
6. Dissemination: Among the primary objectives of the Special Education IMC/RMC Network is the effective dissemination of products developed by various projects and commercial publishers throughout the country. The regional centers have now developed a functioning network of Associate SEIMCs. It is our intention to disseminate these parental materials through this existing system.

If the initial programs prove to be an effective means for assisting parents in educating their children, it is anticipated that the model could be extended to additional areas of self-help and perhaps to other areas of instruction as well.

References

- Barsch, R. H. The Parent Teacher Partnership. Washington, D. C.: Council for Exceptional Children, 1969.
- Calvert, D. R. Panel: Special programs in operation for the multi-handicapped. In W. D. Lance (Ed.), Proceedings of the Special Study Institute for the Multihandicapped, Sacramento: California State Department of Education, 1967. (pp. 21-25)
- Calvert, D. R., et al., Office of Education describes model projects for young handicapped children. Exceptional Children, 1969, 36, 229-230.
- Hewett, F. M. Educational planning for the multihandicapped child. In W. D. Lance (Ed.), Proceedings of the Special Study Institute for the Multihandicapped, Sacramento: California State Department of Education, 1967. (pp. 70-72)

A NEW MEDIA SPECIALISTS TRAINING PROGRAM

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There is general agreement today that educational media can extend and enhance faculty talents. Teachers traditionally have been noted for their abilities to read, write, speak, listen, make assignments and grade assignments. Their talents in preparing presentations have often provided poor competition for the multi-media presentations that their students experience in the modern technological world.

Media or technological devices in education enable clever teachers to demonstrate, emphasize, document, dramatize, analyze, illustrate, replicate, exemplify, counterpose, and synthesize experiences in exciting, interesting, and provocative ways.

Many of us are not happy with the rate at which technology is being accepted in education, but it is being accepted. A quote from John Gardner is appropriate: "A dozen years ago when some of us began predicting and describing the approaching technological revolution in education, we apparently gave the impression that it was approaching with supersonic speed. In fact, it has limped onto the scene. But anyone who doesn't recognize those first limping troops as the vanguard of a mighty host is just out of touch."

Every student needs to have wide and wise use of media in his education. Handicapped students need to have special kinds and special quantities made available to them. Every teacher of handicapped children needs to have special training in media and the services of a competent media specialist at close range to help in the procurement, adaptation, preparation and utilization of suitable media.

The media specialist's role as defined by Don Ely is, "The design and use of messages that facilitate learning." The media specialist is often considered the person who makes it possible to apply technology to the educational process. Technology comes from two roots. One means systematic treatment, and the other means to weave or to construct. "Technology in education seeks to employ personnel, space, equipment and process--each for its most efficient and intended purpose and all in close relationship." (Sekerek).

Providing conditions for optimum media utilization to all teachers and students is a large order. Many special kinds of media have been developed. All educators need to have some but limited acquaintance with library science, systems, computers, building facilities, equipment selection and operation, programmed learning, still photography, non-photographic visuals, radio, motion pictures, closed circuit television, broadcast television, sound recording and reproduction, data processing, etc. In addition every educator needs to have a nearby person available who has made special studies of all or most of these areas. It is the purpose of our training program to prepare media specialists with competencies in each of these areas to help classroom teachers and their students.

The media world today is complex. It is not enough simply to provide hardware and software for teachers. We have tried the library and equipment approach and found that it did not produce optimum media utilization. In

addition to adequate local libraries of materials and the equipment necessary for using them, we must have local production facilities, adequate room facilities for using media, time to preview and experiment with materials, teacher-training, administrative support, professional assistance, technical assistance, community support, and parental support. Our new media specialists should provide help in all of these areas.

As we begin to revolutionize the education of handicapped children with media, we must work at an entirely different level in considering them. We traditionally inserted audiovisual aids at the curriculum implementation level. We now know that media systems and technology must be included in the curriculum development phase of education. Audiovisual aids were a supplementary and optional addition to the educational process. Media, systems, and technology are an integral part of the curriculum and its implementation.

In designing a program to prepare media specialists at schools for the deaf in the 1970's, we first tried to determine what sort of responsibilities the specialist would have. We visited some of the best centers in the country and consulted with the leaders in the field. There seems to be a consensus that the media specialists of the 70's would manage some sort of a resource library including print and nonprint materials for teaching and for individual study. The term resourceteria seems to describe what we see emerging here. The specialists would also manage an equipment shop that would acquire, store, service, transport, operate and adapt equipment for the special needs of our teachers and students. A local production shop would also be supervised so that photography, recording, duplicating, artwork and mounting could be easily accomplished. As individual study in the resourceteria continues to expand, the specialist might be expected

to supervise the individual study carried on there. Constant in-service education will be required for the foreseeable future. Innovation not only shows no signs of decreasing, but instead shows constant signs of expansion. The media specialist should have wide opportunity to observe innovative equipment, materials, facilities and practices, and report all the desirable examples to his teachers. The media specialist needs to be a professional consultant in all areas of media to his administrators and to all people concerned with school construction, renovation, etc. In other words, the media specialist of the 70's is the professional leader in all aspects of technological application to education in all its forms.

You may have sensed that we are treading on the toes of some traditional librarians. We are also treading on the toes of traditional audiovisual people. We intend to combine the two former areas into one new professional position. The student who is looking for information should not have to determine whether it is print or nonprint information, and the teacher who is looking for help should not have to go to two separate people. We think that one professional person can master both fields and supervise technical and clerical assistance to do much of the non-professional aspects of a single operation.

Our students start off with a basic course in media and mediaware. They must learn the characteristics, capabilities, availability, operation, applications, and implications of a great variety of educational materials. They must also learn a good deal about mediated messages for handicapped children. These must be considered in the light of modern learning theory and the applications of learning theory to the education of handicapped children. Simple presentations of commercially available material will not do the job that needs to be done in schools for the deaf. They must learn a great deal about what is happening in modern education for ordinary

children and make applications of it to the education of handicapped children. We are paying particular attention to individualized instruction because it seems to be so appropriate for handicapped children. Outside of the School of Education they are taking courses in psychology of handicapped children, the anatomy and physiology of the hearing and speech mechanism and attending a course in teaching language to hearing-impaired children in the Smith College/Clarke School program seven miles away in Northampton. The demands of media on the teaching setting are also considered. We have too long considered that media must always be adapted to the educational setting. We are now at the point where the educational setting must be adapted to media.

The center that they will be expected to set up and operate at a school for the deaf must fit in with the existing network of media centers to serve the needs of the deaf and other areas of the handicapped. Resource people representing various units in the network spend time with our students explaining their jobs and philosophy. One of the wonderful things about the program is our ability to bring visiting experts to the campus.

Another unusual thing about the program concerns field trips. We are funded to take these students or send them to exciting areas of activity involving media and/or education of hearing-impaired students. Most of our students attended the DAVI Convention in Detroit last year as guests of DAVI.

Our specialists must not only have the skills necessary to work with hardware and software, they must also have the skills necessary to work with people. They will be working constantly not only with teachers but with students, custodians, administrators, supervisors, educational innovators, media innovators, ancillary professional staff, architects, builders, clerical staff, technical staff, and even parents.

We did some dreaming about the instructional materials center at the school for the deaf in the immediate future. It seemed to us that every school ought to have one professional director for its instructional materials program. This is the person we are attempting to prepare. A minimum staff under this person would be a library aide or clerk and an equipment technician. For larger schools or schools demanding more media service, we would like to see additional people such as a professional print librarian, a clerk or secretary, a graphic artist and/or photographer, a film clerk and/or film technician, a media consultant to work with teachers, and student help.

The School of Education at the University of Massachusetts has an unusual degree of flexibility at this time, and we are making considerable use of this feature. Formal courses constitute only one means of satisfying a curriculum area requirement. Many alternatives are provided and the student is encouraged to suggest further alternatives. Along with grades, the student acquires a portfolio describing and evaluating his many alternate experiences.

Our program requires three years. We obtain the recruits in our program at the end of the sophomore year to begin their program with the junior year. We continue them through a senior year program and one year of graduate work so that they complete the program with a master's degree in our Media Specialists Program for education of the hearing impaired. They are definitely not prepared to teach the deaf. This program was designed to prepare media specialists directly and not to retread other professionals. There is so much to be learned in the area of media for education of the deaf that we cannot take the time necessary to make a teacher of the deaf at the same time.

This program results in an early decision to be a media specialist at a school for the deaf. Traditional media specialists have been remade

from successful teachers of the deaf after several years of experience. We are attempting to get a decision at the sophomore level in college so that we will have a practicing media specialist at an early age.

We currently have three seniors involved in this program and eleven juniors. We also have one senior temporarily out of the program as he serves time as a dormitory counselor at a school for the deaf as a conscientious objector.

We are, of course, very excited about this program. We have a group of media specialists in the making who are at once the youngest and most enthusiastic media specialists you could imagine.

For the 70's--Accountability in Teacher Preparation

George Propp

Midwest Regional Media Center for the Deaf

Before the decade of the 70's comes to an end, it is hoped that one of the goals we will have attained will be something like this: Instead of saying that Student A is educationally retarded by four years, Student B by two, and Student C by $5\frac{1}{2}$, we will say that at School X the deaf learner has a 100 percent probability of achieving his full potential, at School Y the probability is 85 percent and at School Z only 60. Once we are able to hold schools accountable for what they do for the hearing impaired learner, the sooner we will be able to diminish the educational lag that separates the deaf from their hearing peers. New goals of productivity can be achieved when we no longer hide within the anonymity of averages and shared neglect.

We are party to our own deception

In the education of the handicapped there exists a serious dichotomy of talk and action. Our educational journals, conferences, conventions, and workshops are all instruments of our self-deception. Educational literature in our field would make it seem that we are in the midst of an innovative sweep, when we are in fact maintaining our comfortable, antiquated programs. Here and there we have truly outstanding teachers; more frequently we have teachers who are outstanding every now and then, but their impact has been mainly in our educational literature which

the deaf kids do not read. It's quite possible for a deaf child to go through his entire educational career without encountering anything that wasn't being done fifty years ago.

Some people can't change, some won't, but the most unfortunate of all are those who can see no reason for making change. Overall, however, the number of people seeking new ways to do things are rising in ascendancy, and the climate was never more favorable for innovative and creative teaching. Our major role is to deal with those teachers who are amenable to change and show them how to go about it. This should be the major thrust for in-service training efforts.

Dynamic Leadership is Needed

Needed more than anything else at this critical time is dynamic leadership and an organizational structure that makes leadership functional. It needs to be pointed out that in the education of the deaf, although everybody seems to know everybody else, we are largely anarchial in nature, a factor which precludes the possibility of effective leadership until our structure is changed. We have had teacher education programs for scores of years, and it has not been until very recently that we began reacting to the fact that:

1. We have never bothered to train teachers for the secondary level.
2. We have no provision for training vocational teachers, although we have always taken great pride in our vocational programs.
3. We have just begun to make provisions for training people in preschool and multi-handicapped areas.
4. We have made no attempt to train people for special roles in situations like team teaching, curriculum development, etc.
5. We have been turning out people with administrative training at the rate of about ten a year.

6. There is positively no place where training is provided for supervisory people.

It's a small wonder that we have people traipsing to Europe to find out what's new in the education of the deaf.

Unfortunately, adequate leadership cannot be had for the asking. Within the present scheme of things, leadership does not have adequate data for effective decision making. Few, if any, teacher training centers are allocating funds for research or any other form of data collection.

If all teacher education centers made a full commitment to innovation, it would take only five years or so for the new breed of teachers to dominate the learning situation. This commitment to change, however, must cover the whole spectrum of deaf education. This may be an over-simplification, but listed below are some of the things we need to respond to:

1. Relevance of long-standing goals and aspirations.
2. Recognition and examination of the growing forces that seek change, such as developments in technology.
3. New learning and communications models, such as (a) the change from cognitive to affective and humanistic learning and (b) the need for psychological well-being for enhancement of intellectual growth.
4. New curriculum developments.
5. More attention to output and product than to input and processes.

The Teacher's Major Function is to Become Dispensable

For as long as we can remember, education of the deaf has tended to foster a child-like dependency on the part of the students. The individual teacher interacts directly with an individual student for a very short time, and the main idea should be that teachers, like parents, become dispensable. The greatest gift that a student can acquire from a teacher is the ability to learn how to learn, to acquire knowledge without the intervention of adults.

It has often been said that a school cannot rise above the quality of its teachers. Evaluation of our school product tends to indicate that schools are doing a bad job; in other words, our teachers are failures. We possess the resources and knowledge to educate the deaf much more effectively. Change is needed, but change will not happen unless we work aggressively toward making it happen. We must prepare teachers who are flexible, creative, and innovative---teachers who in their own search for knowledge provide the hearing-impaired child a model for learning. We are still in the process of defining the new role for the classroom teacher. Joseph I. Lipson has outlined some broad categories of skills and competencies which we might investigate. According to him, the classroom teacher:

1. Should be an intellectual model.
2. Should possess attitudes, opinions, emotions that foster learning.
3. Should be able to determine appropriateness of student behavior and arrange proper contingencies for various behaviors.
4. Should be able to employ a complex and varied system for allocating resources.
5. Should be a selective knowledge source for both the development of instructional strategies and for the direct use of the student.
6. Must be able to collect, organize and interpret data, using the data for decision making.
7. Must be able to plan an educational program that can assist each student's career development.

Quite naturally, the teacher in turn will need the facilities and administrative support to do these things, but most of all, she will need something new in the way of pre-service education.

The Age of Consumer Involvement

In the education of the deaf, one would have to agree that the ultimate consumer of the educational product is the deaf individual himself, and to some extent the parents of deaf children. We need not emphasize this any further than by pointing out the lack of representation by deaf adults and parents of deaf children at this meeting. We are in this respect overlooking a very significant source of feedback. I believe it was Gilbert Keith Chesterton who is credited for saying "to train a citizen is to train a critic". The extent to which we ignore our consumer is perhaps the worst indictment we can make for educational programs for the hearing impaired.

The Midwest RMC and Teacher Preparation

The major emphasis at the Midwest Regional Media Center for the Deaf is on in-service training. More than one-third of our budget is allocated to training activities. These activities may be described briefly as follows:

1. A six-week summer media institute for classroom teachers of the deaf.
2. A two-week institute for supervising teachers and principals.
3. A two-week institute for teacher education people.
4. A one-week institute for media specialists.
5. A national symposium for people from administrative ranks.
6. Five short term (two-day) workshops within our region.
7. Consultation and advisory services as requested.

In our project efforts we have been attempting to reach people at every level in the total educational spectrum. We have, we feel, been having a significant impact, but, overall, we are like the Dutch boy with his finger in the dike except for the fact that the dike has more leaks than we have fingers.

We do not mean to imply that we regard ourselves as being in a hapless situation. People who participate in our programs provide us sufficient feedback to maintain our confidence. We are sure that we are doing something that is right, but reality tells us that we are reaching only a small fraction of our professionals and that the most enterprising of our trainees are frustrated by the lack of facilities and support needed to exercise their skills and competencies.

One of our major concerns is over the fact that many of the things that we are doing could and should be done by teacher education institutions. We would be more than glad to see some sort of agreement on what should be pre-service and what should be in-service training. We look forward to the day when teacher training centers will provide both pre-service and in-service training for teachers of the hearing-impaired and our role will be simply one of providing support for both efforts.

On the other hand, we are prepared to improve and enlarge our training effort. We are even now writing outlines for new courses for instructional strategies. We are discussing criteria for the new breed of teacher. One of the things we are talking about is a teacher education program offered in a block form where a student can select a requisite number of instructional objectives and learning experiences best suited to his needs. The idea is to teach a college student as we want him to teach a hearing-impaired child. Things like this are mainly in the talking stages, but we have been implementing some of these ideas into our Summer Media Institute, and we are acquiring our wisdom slowly and painstakingly by testing our theories in actual practice. Our Summer Media Institute is possibly becoming a model for systematic organization of instruction. Nobody knows better than us that we have a long way to go.

The Long Range Goal:

The long range goal for teacher preparation programs should be a teacher who is a practicing scientist rather than an artist. We may need to pass through some intermediate stages first, but we can anticipate that eventually teacher education centers and educational technology will get together and turn out a teacher with the knowledge, skills, and resources to attain specific learning goals. The new teacher will be able to develop prescriptive programs that are completely adaptive and individualized. That is, a teacher will be able to move a specific child a specific distance along the continuum of learning within a specified time. To do this, she may demand as much as \$100 per pupil for instructional materials and facilities such as you have not yet heard of. By today's standards, she would be a bargain at \$25,000 a year.

Would this do for ACCOUNTABILITY?

Teacher Directed In-Service Education
- A Change Agent for Instructional Technology

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Education supposedly is a continuous process whereby we add to our storage of knowledge and increase our capabilities for adapting to new situations. Like children, our efficiency in learning is related to the degree that we are successful in applying what is learned in one situation to others similar in nature. For the most part, the educational process is sequential with certain proficiencies prerequisite to learning particular skills and concepts. In teaching children, we invest heavily in developing readiness for that which we teach. If the child fails to achieve, we determine his deficiencies and attempt to remediate his problem through presentation of instruction at a less difficult level or employment of alternate techniques.

Today, we are engaged in an exploration of instructional technology. We are being told that it holds unlimited opportunities for us to improve our instructional program. We are also being told that we are deficient in the utilization of these technologies. In essence, we have been so preoccupied with a narrow concept of our role in the teaching learning process that we as teachers have failed in our own learning process and education has failed to profit from the experience of its teaching allies in industry, the military, and mass media in general.

If we have failed to achieve in the application of those technologies available to us, is it because of the lack of prerequisite skills? If this is so, then who is responsible for creating within us this state of readiness? At this point I am reminded of the "independent learner syndrome" stressed in my preparation as an undergraduate; i.e., the idea that the learner achieves a level of performance that equips him to independently seek knowledge and capitalize on resources available to him. Presumably we are independent learners and fully capable of learning more about our pupils and about available means for enhancing their education. While we might elect a defensive response to our failure to take advantage of instructional technology and state that this observed deficiency is merely an observation of outsiders, a more realistic approach would be to examine our own performance and determine what course of action is warranted.

Many of us have tended to view technology as synonymous with media, and media synonymous with apparatus, machine, etc. Consonant with such perceptions has been the innuendo that our skills could be replaced by technology. When we consider the definitive statement on technology being presented to us at this conference, it becomes apparent that our perception has been somewhat nearsighted.

The Commission on Instructional Technology (1970) has defined instructional technology as

"... a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research and human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction."

The broadness of this definition affords us a certain amount of comfort in that it embraces much of what we do and certainly much of what we believe. But, the reference to "non-human" resources as a means of bringing about more effective instruction has a potential of again distracting our attention from the essence of technology unless we focus on the key word "combination". The thrust is on employing a combination of human and non-human resources. The implication is that such resources are complimentary but it does not rule out the possibility that for some teaching tasks one may be more effective than the other.

The significance of this definition is made more obvious when it is viewed in relationship to the process of education. Gagne (1969) describes education as

"...a process of imparting new and increasingly complex capabilities to the student. In this sense, education is itself a process of communication which can be analyzed into a number of subordinate functions to be carried out by designers of instructional materials and equipment, teachers, and others."

If we can accept Gagne's description of the process of education and the Commission's definition of an instructional technology, then it is extremely difficult to justify education's lack of responsiveness to the emerging universe of instructional technology. Yet, this lack of response is clearly evident in the public schools today. Those of us concerned with the education of handicapped children are potentially most vulnerable. In view of the complex teaching tasks teachers of the handicapped face daily, we should be at the forefront in exploring the application of technology for instructional programs. For the most part, this is not the case.

We find ourselves acknowledging the need for greater utilization of technology but committing our energies to coping with instructional tasks in the domain of human resources, namely, ourselves as teachers. There is a tendency for us to use those methods, materials, and instructional aids with which we are most familiar. Consequently, we circumscribe the universe of technology used according to our own competence or lack of competence. In other words, the seeking of new and better technologies is not consistently a part of our teaching set.

If we are to make better utilization of available technologies, it appears to me that we have to begin thinking in terms of alternative strategies whenever we make a decision on how a particular skill or concept is to be taught. Within these alternatives must be those technologies relevant to the learning experience we are attempting to structure. This means that we must expand our knowledge of available technologies as well as to come up with retrieval systems which make them accessible to us in our classrooms. A concomitant problem is one of our attitude or set. Rather than to dwell on ways of influencing our attitudes toward technology, I have elected to confine my remarks to the task of acquiring knowledge about technology. In doing so, I will be couching my remarks within the framework of two areas which must be viewed as prerequisite conditions to the effective integration of technology in the broad sense into our instructional programs for handicapped children. These include the necessity of well developed curriculum as a basis for decision making relative to technology and also retrieval systems which are within the realm of practical utility and within our available local resources.

Without systematically developed curriculum, we are at a disadvantage in determining which technologies are most relevant to our needs. The lack of investment in curriculum development for exceptional children places us in a precarious position relative to employment of technology in the classroom. This is not to preclude our use of new technology but it does make the need for curriculum development even more pressing. Dr. Cawley's presentation will bring this perspective into focus.

Even with a prescribed curriculum, we are still faced with the task of gaining access to available technologies. While sophisticated procedures can be employed to retrieve media and other technologies, there are practical limitations which inhibit the implementation of systems applicable to the many types of districts in which special education services are provided. It becomes imperative that public schools begin with retrieval systems which are workable and within the present capabilities of the district. Certainly there should be an aim toward more comprehensive systems, but to start with the grandio scheme may impede progress. Dr. Adamson will be illustrating a retrieval system which is both workable and meaningful to teachers.

Equal to these two concerns is the task of obtaining information on available technologies and how to employ them. While university courses represent an avenue, they do not represent a significant resource to those teachers in the field. Some type of in-service approach becomes essential and if a major impact is to be made in the area of utilizing instructional technologies. This in itself will be no easy task. Our history of providing in-service training in special education is not extensive. Too often, we have merely selected from the offerings of regular education or offered sporadic in-

service programs for special education personnel. We have few examples of sustained large scaled in-service training programs to be used as prototypes.

In mounting an in-service attack in this area of need, we must overcome the manpower problem and the question of financial resources. While these questions may task our imaginations, they are not insurmountable. At least the input is available to us. The assignment is one of coming up with methods for engaging teachers in meaningful instruction on technologies and their application in the classroom. To accomplish this we must first alter the status of in-service education in our priority system for investment of talent and funds. Teachers in addition to administrators must take a second look at the vehicles they are utilizing in the improvement of teaching skills and general communication among staff. If change is to come about within our established programs, then the initiative for such change must emanate from within the teaching ranks or at least within the ranks of those directly concerned with instructional programs. Change toward improvement in instruction cannot be mandated with success. The teacher not the material nor the visual aids, or resource support determines the quality of instruction offered children. The teacher must match concept with method and materials with experience. Unless she is familiar with the wide array of available techniques, motivated to use them, and capable of relating them to the curriculum she is implementing, we have a teaching situation in which the selection factor is being exercised. Only to the degree that the teacher selects from several alternatives, is there the possibility that the better technology will be used. As long as a teacher perpetuates a single style employing a redundant pattern of technologies, the chances of change are minimal.

Instructional technology is not the only need relative to in-service education but it is certainly a prime target currently if we are to capitalize on who is available but not being used. While there are attitudinal problems to overcome on our part as teachers and administrators, we do have resources available to us. The Special Education Instructional Materials Center (Olshin), local media centers, as well as systems such as OEO - ERIC are examples of such resources, but they are only resources and can be effective basically to the degree that we make use of them. Somehow local districts individually and collectively must integrate the sum of these resources into their own in-service system. To expect the resource agency to accommodate local needs is not only narrow-sightedness but a concession of responsibility. What is needed are in-service programs which are designed to enhance the teacher in her efforts in keeping abreast of what is happening in the broadly interpreted field on instructional technologies. No one model will work for all situations, however, similar guidelines can be considered in the model generation process. For example:

(1) Systematic

- (a) planned process
- (b) prescribed input
- (c) procedures for communication
- (d) guideline for broad agency participation
- (e) continuity

(2) Broad Coverage

- (a) must be accessible to all teachers of the handicapped
- (b) large district, a regional, or state based
- (c) accommodate needs unique to particular area.

- (3) Teacher Based
 - (a) related to teacher expressed needs
 - (b) teacher participation in decision making
 - (c) teachers in leadership roles - our major source of manpower
- (4) Status
 - (a) high priority by administration
 - (b) recognition for participation
 - (c) investment by school district
- (5) Flexibility
 - (a) capable of capitalizing on current developments
 - (b) modifiable to accommodate unique administrative structures

The SECDC model developed at the University of Iowa (Meyen 1967 - 1969) in 1966 and which continues to operate today as a statewide in-service training program for teachers of the mentally retarded is an example of one model which embraces the previously mentioned criteria. This particular model is organized as follows.

- (1) Cooperation developed and sponsored by the Iowa State Department of Public Instruction and the University of Iowa.
- (2) Statewide coverage based on 16 geographic areas.
- (3) Uses master special education teachers as in-service educators (consulting teachers)
- (4) Special materials are developed by the staff for dissemination through the system.
 - (a) Consultive teachers receive training and guidelines for their presentations.
 - (b) Consulting teachers conduct field sessions monthly.
 - (c) They are reimbursed for expenses and receive a minor honorarium.
- (5) Attempts to institutionalize the role of consulting teachers.

- (6) State Department consultants coordinates the field session.
- (7) The materials are developed at the University of Iowa and published by an intermediate school district.
- (8) The past three years were supported in part by a grant for the Bureau for the Handicapped. It is now in its second year of operation on state resources.
- (9) On a voluntary basis, the enrollment in the field session increased in the field session increased from 508 in 1967 to 807 in 1969. The average attendance per month in 1969 was approximately 700. Approximately 90% of all teachers of the mentally retarded participated.

It is apparent that programs of this type are not the result of unilateral action on the part of a local district, State Department, or university.

If we are going to make inroads in the form of change relative to areas such as instructional technologies, it becomes imperative that all relevant agencies be involved and that their involvement be based on the matching of role with function. Universities should not expect State Department to do that which they are not capable of doing or vice versa.

It seems to me that our concern must be focused as much on how we are going to cope with the most problem of getting technology into the classroom as on the development of new and different technologies. Systematic in-service training conducted by and for teachers within an environment of support appears to me to be a logical course of action.

The School of The Education Professions

New Designs Aimed at Accommodating to New Developments in Teaching

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The ideas I will talk about today are still in their formative stages. They are ideas about how members of the education professions should be prepared for the new kinds of schooling that are emerging.

Instructional material and technology now commands a major focus of attention. So does the increase in understanding about the science of teaching. What does this mean for the training of personnel to man the nation's educational enterprise? Some possible answers to that question are emerging. I want to talk today about how colleges and universities and school systems might tool up and organize to train for today's most forward-looking schools.

First, what is the prevailing model of preparation for the education professions? It could be called the Reflective Model, because it is almost a mirror-image of the conventional public school system.

The typical school system has elementary schools. In the typical college of education that fact is reflected or mirrored in the department of elementary education which prepares elementary school teachers. There is the department of secondary education which prepares secondary school teachers. There is the department of special education which prepares various special education teachers. There is the department of curriculum and supervision which prepares curriculum specialists and supervisors. There is the department of educational administration which prepares superintendents and associate superintendents and principals, and so on. There are some exceptions of course but that reflective pattern, that familiar mirror image model is still the prevailing one. I believe that old familiar pattern inhibits the growth and development of teacher preparation in modern terms. I also submit that there are alternative methods of organizing professional preparation which have greater promise.

Before going further it should be noted that teacher preparation is an expression which itself is passé. It is necessary to acknowledge that there are quite a number of distinct and substantially different professional occupations which join together to carry on public and private education for children and youth in this country. There are school principals, school psychologists, school social workers, counselors, school librarians, educational communication specialists, football coaches, educational researchers, kindergarten teachers, vocational education teachers, art teachers, science teachers, and so on. We may of course lump all these peoples together as teachers or educators. I believe it is more fruitful to frankly acknowledge that each one is a relatively distinct profession. They no doubt do have some things in common. And important things. But it is more realistic in my judgement to speak of them as members of the education professions, and I emphasize the plural quality of the term professions. It is with this orientation that I will proceed to talk about two alternative designs for the preparation of members of the education professions. In all that I have to say I am making the assumption that all of these members of the education professions will be prepared in the same setting. Each will follow a somewhat different track through the organizational structure which I am about to describe.

The first design I want to speak about I will call an operations-centered or operations-oriented design. The second alternative structure I will refer to as a process-oriented or process-centered design. The first will be type "o" for operations, the second will be type "p" for process. It occurs to me that it may be significant that the first two letters taken together are the first two letters in the word "option." I do view them as optional, and probably superior, organizational structures when compared with the conventional organization for the preparation for the members of the teaching professions.

The operations-oriented design has four major components. It would follow, if you were to apply this design to the organization of a college of education, that there would be four major departments.

One would be the department of teaching and learning theory and methods. This department would have the responsibility for imparting to all prospective educators what they need to know about that is implied in the title of the department. It is certainly true that children of different ages are very different from each other. It is also true that there are very great differences among children of the same age. Like you, I respect and cherish those differences. But in one very important way children and youth and adults are very much alike. Except for its external trappings, the learning process is essentially the same for all human beings, regardless of age or condition or circumstance. Thus the principles and theories applicable to teaching and to learning have the same basic qualities for all children and youth and for that matter for all of us. This is not to say that adaptations are unnecessary. Certainly they are. At the same time they are adaptations. They are not fundamental changes. Thus the idea that there needs to be a separate course in "the learning patterns of young children" as differentiated from "the learning patterns of adolescent boys" is open to real question.

The second major unit or department would have to be called something like the department of curriculum, instrumentation, instructional materials, and media. I have not been able to think of a catchy overall name for this particular unit, and that may mean it is doomed before it starts. But I do believe that a solid case is emerging for considering that group of concepts as so closely interrelated that they belong in a unit. It is artificial to separate what is taught from the media by which it is presented. It is unnecessary to do so, and it is inefficient. The very existence of media and the invention of new media depends upon social and professional decisions about what should be taught and to whom and when and under what circumstances. At the same time, developments in media and instructional materials themselves trigger new conceptions as to the substance of courses of study.

The third large unit in the operational design is the department of practicum. Here is gathered the staff of professional personnel responsible for liaison with the public and private schools in which prospective members of the education professions get their supervised experience. This should be a team experience for prospective members of the education professions. Moreover it should be an experience which begins as soon as professional preparation begins and one which continues through the entire period of professional preparation. Operationally, the existence of a department aimed at implementing the practicum function seems justified on at least two counts. One is the acknowledged overwhelming importance of the practicum experience as such. Second is the

need to provide the interaction with other members of the education professions which a coordinated practicum alone could furnish. To give this operation in the preparation of professionals full and equal departmental status is a long overdue acknowledgement of its importance.

The last of the new four departments would be a department of school organization and management. I suppose that it could just as well be called a department of instructional organization and management and that might be better, in the eyes of those who view instruction as the central purpose of the schools. Whichever it would be called, it would be important to all prospective members of the education professions. It is in the setting of this department that all members of the education professions acquire the competencies for organization and management needed by the complex educational enterprise of today. It may be important to remind ourselves that there are principles of organization and management which are just as broadly applicable across elementary schools, secondary schools, large city school systems, state school systems, private schools, public schools, libraries, individual classrooms, team activities, and the like.

It would certainly be necessary in an organization of the kind just described to have some other units although they could not be departments in the sense that they would carry on instruction. One would be an office of career planning. Here students would be able to get information about the education professions. This would serve as an admissions office. In the sense of supplying students with the mechanisms for getting started on career planning, this office could conduct initial advisement. Departments would need to have liaison with the office of career planning. This office could be the repository of student records. Another office might well be the office of evaluation. Here would be evaluated the effectiveness and the adequacy of the output of the School of the Education Professions itself. In addition to a permanent staff it would seem appropriate that this office have members of the various departments rotating onto and off its staff and entering into the assessment and evaluation process at all times. That would provide for the combination of an external and internal check on the validity and integrity and adequacy of the total program for the preparation of members of the education professions under the scheme. Such an office might be necessary in any other scheme as well.

One might ask where does the professor of elementary education fit into all of this? Or where does the professor of health and physical education fit into all of this? Actually as it turns out, the names of such professors, or their titles, are not really very functional. Usually the professor of special education or elementary education or secondary education does not really claim or display expertise in keeping with the terms used to describe him. He is more likely to be someone who specialized in supervising practice teachers, or specialized

in research in his field, or specialized in the organization and administration of programs, or specialized in curriculum and instructional materials in his field. In the organization just described that professor maintains his identity with respect to special or elementary or physical education, if he wishes, but he works with persons from all other aspects of the school program in the area in which he is most competent. In short, those professors of mathematics, physical education, vocational education, or special education, or whatever work together. All those who focus on practicum in their fields work together in the department of practicum. All those who focus on theory and methods of teaching and learning work together in that department.

How about the student? Suppose I want to be a teacher of the blind? Who prepares me? How is it done?

Once admitted to the college, the student is assigned to an advisor. That advisor would have competence as an educator in general and specifically as a special educator of the blind. The advisor would plan and schedule for the student a sequence of learnings provided by the four departments. In many respects the substance of the program of studies would resemble what is now a program of studies to prepare someone to teach blind children. It is its organization, its sequencing, and its interactions with other professional preparation of other members of the education professions that would be markedly improved.

The same could be said for the preparation of a school principal or a school superintendent. Instead of a separate department of educational administration, the four departments in this design would be the settings in which the prospective superintendent would gain the appropriate knowledge, competencies, skills and understandings for that job. Some departments would have more to offer than others. That would depend on the education profession for which one was preparing. All departments, however, would participate to some extent in the preparation of all people in the education professions.

Now let us turn to the other model, the process design. This alternative will be presented much more briefly. That is not because I consider it a potentially less useful design. It may be a much better one. But it can be presented briefly because in many respects it differs from the organizations now in effect along the same dimensions as does the operational design just presented.

This design has only five departments. It has a pragmatic base which can be related to almost any learning theory. It starts from the assumption that there are five essential components in any learning situation. These components all must be present in order for learning to take place. Moreover, no other components are necessary for learning to take place.

Each component is a base for a department. The first is curriculum, the second is student characteristics, the third is motivation, the fourth is instruction, the fifth is criterion. These are not very fancy names for departments either. I expect that we could develop some that would be much more catchy and attractive. If you think this is a good pattern and want to try it I will be glad to help you think up some more saleable names. But for the moment they can suffice. The curriculum department would concern itself with the tasks which are to be acquired by the students in the course of education. It is in this department that a student would learn all that he needs to know about those aspects about the curriculum that would be appropriate for his specialization. In the second department, the department of student characteristics, the human organism would be the focus of study. Naturally the focus would be on those aspects of human organism which are relevant to teaching and learning. For example a person preparing to be a teacher of the blind might very well spend a great deal of time learning about the human senses which will need to be maximized in the education of blind children. Thus such a person might spend a great deal of time learning about hearing as it is related to listening, about touch, about smell, and about their use and combinations. Naturally, if some useful vision remained in the child, a teacher would learn to maximize its use as well. In the department of motivation the prospective member of the education professions would learn what is necessary about the processes which operate to move human beings in certain directions and not in others. Since a fundamental part of teaching and learning is to bring the student into constructive contact with whatever is to be learned and to encourage that contact to the exclusion of others, the study of motivation has a fundamental importance. Such study, of course, means to involve not only understanding but also application on the part of the teacher. We must keep in mind that the teacher is not only a student but also a practitioner.

The next department would be the department of instruction. It is in this department that we would find all of those devices and materials which would be necessary for the teacher to use in bringing the student into constructive contact with the curriculum. The last department, the department of criterion, would concern itself with how we measure, assess, and otherwise judge the effectiveness of any kind of learning. Combined in this department would be the responsibility for preparing prospective members of the education professions to understand and apply measurement and assessment procedures and the responsibility for measuring and assessing the values of the education professions preparation program itself.

The office of professional development would admit all prospective members of the education professions and guide them through preparation programs, ending up in facilitating professional placement.

Let me conclude by reminding you that I said I would offer ideas which are not fully formulated at this time. I believe that present-day college of education organizational designs are out of step with contemporary needs and out of step with preferred practices in the country's schools. Being out of phase, the colleges of education limit their own effectiveness. I offer the operational and process organizational patterns as alternatives to the weak and ineffectual reflective model now in general use. If these new models seem to you to have promise, I urge that school districts and colleges join forces to implement and test them. Actually, Schools of the Education Professions should be more than "in step" with the field. The School of the Education Professions should be setting the pace.

LONG DISTANCE MICROTRAINING*

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Introduction and Definition

This paper presents several applications of the microtraining process of subjecting samples of human behavior to videotape recording, reviewing, responding, refining, and redoing--the "5r's." The process lends itself to numerous training applications both within and outside the academic arena and the rationale applies equally well to all. Several examples of the practical application of the process are related herein.

The procedure called microteaching serves as an example of the systematic application of microtraining to the improvement of pre-service and inservice teacher education. Microteaching is simply defined as a scaled-down sample of teaching. The term "micro" not only denotes the reduction in lesson and class size but also adds the connotation of precision, in the sense that microteaching, by honing down the edge of observation to a fine-cutting process, enables an objective quantitative and qualitative analysis of the recorded behavior. Microteaching is essentially an opportunity for educators to develop and improve their pedagogical skills with a small group of students (3 to 7) by means of brief (3 to 7 minute) single-concept lessons,

*Paper presented at the Annual Meeting of the American Psychological Association, Washington, D.C., August, 1969. Portions of this paper have appeared in articles by the writer which are listed in the References (cf. Meir, 1968a & b, and Meir & Brudenell, 1968).

which are recorded on videotape for reviewing, responding, refining, and repeating until perfected. An effort is made to analyze the many aspects of the trainee's performance, to ferret out those most amenable to change, and to concentrate on their perfection, one at a time.

Long Distance Monitoring

The time and expense involved in bringing large numbers of trainees into a single training center or of taking trainers to a series of centers exhausts an inordinate amount of valuable manpower energy and resources. Transportation and living expenses (including salaries or stipends) often greatly exceed the cost of the training program materials themselves. To get maximum dollar mileage, these sessions are usually very intensive, frequently resulting in information overloads and poor retention.

The trainer or training team, traveling to several locations and repeating identical sessions for smaller numbers of trainees soon suffers from monotony.

Microtraining in satellite locations is a suggested solution to some of the aforementioned problems. Many on-the-job or inservice training programs can be broken down into a series of specific tasks which can be captured and represented through various media. It requires the analysis of training programs into parts which can be translated into small training segments that may or may not have a chronological sequence of presentation and mastery.

The development and packaging of a training program which consists of a number of interrelated small units that are mailed out--either

together or in installments--is not enough to insure that the trainees have mastered the necessary tasks. It is seldom sufficient to assess trainee performance exclusively by written or oral examinations. The more articulate and intelligent trainees may be able satisfactorily to say what they are supposed to do and not be able to actually do it. Those who are less able to express themselves in written or oral form and yet have mastered the performance of the task may be downgraded regardless of their actual proficiency.

Assuming that most training programs seek to modify human behavior, the most reasonable and authentic feedback regarding the efficacy of a training program is assessment of actual performance. If the training is occurring in locations remote from the persons who wish to monitor trainee progress, it is desirable to span these distances by listening to and observing the behavior of the trainees in situations similar or identical to those in which they are expected to perform. In most instances it is preferable to observe as well as listen to the trainees' performance in simulated or real situations. The advent of relatively inexpensive (\$1,000-\$2,500 videotape recording (VTR) systems makes supervision of this sort of remote training possible.

A Tested Model

One tested and promising application of microtraining has been with a group of early childhood educators scattered throughout the United States¹. Even though the example is drawn from the field

¹The first one-year project (1967-68) was developed and funded by an N.D.E.A. Title XI grant and served satellites in Lafayette, Colo.; Fort Bertheld, Mont.; Sumter, S.C.; Pine Ridge, S.D.; Chatanooga, Tenn.; Salt Lake City, Utah. The second one-year project (1969-70) is funded by an E.P.D.A. grant and serves Ketchikan, Alaska; Denver and La Junta, Colo.; Fort Peck, Mont.; Artesia, N.M.; and Dallas, Texas.

of education, there are sufficient commonalities throughout the training process that the reader can, by analogy, apply this model to whatever his own training needs may be. Some suggested applications of this procedure to other disciplines are mentioned in a later section.

The model was designed to test an innovative teacher training system and employed existing, through experimental, curriculum for subject matter. The content of the training emerged from an experimental autotelic responsive environment nursery program (Meier, McAfee, and Nimicht, 1968a). Because this was a radical departure from traditional early childhood programs, the teacher's behavior had to be radically modified. For this novel approach to be adequately developed and implemented for widespread validation studies, it became evident that a new teacher training model was exigent.

For most trainees, the program was introduced during intensive one-week orientation sessions. These sessions involved learning specific content and processes suitable for meeting the specific needs of environmental deprived and developmentally handicapped children. This massed input was followed by several months of distributive practice on the same content and procedures by means of several inservice training units.

This initial N.D.E.A. project had several objectives:

1. To test on a limited basis a unique inservice teacher training model for possible widespread implementation.
2. To train approximately one hundred teachers to better accomplish four major objectives (see below) in early childhood education.

3. To further develop, implement, evaluate, and refine the curricula which have been prepared for this project.

4. To compare the relative efficacy of this approach with other more traditional training systems.

This training program enrolled over one hundred early childhood educators during the 1967-68 academic year. The trainees were clustered within geographic areas (satellites) which allowed common access to the VTR equipment. Each trainee had at least one-half day of recording time every two weeks. There were seven satellites, each of which served about fifteen trainees and a variety of instructional personnel (including paraprofessionals), federal programs, geographical regions and ethnic groups. During the one-week orientation each trainee received thirty hours (five six-hour days) of concentrated instruction concerning:

1. The rationale for an autotelic responsive environment;
2. The general classroom procedures for this approach;
3. Child growth and development;
4. The learning experiences preschool children need;
5. The operation of the videotape recorder;
6. Critiquing and related response instruments to provide two-way feedback information; and
 - a. Record -- The trainee videotapes himself presenting a brief, three to seven minute, learning episode to a small group of learners.
 - b. Review -- The trainee replays the videotape, observing the strengths and weaknesses of his performance in comparison to the filmed and/or written examples.

- c. Respond -- The trainee critiques and acknowledges the lesson's strengths and weaknesses.
- d. Refine -- The trainee incorporates one or two changes indicated for a restructuring of the learning episode, assuring greater success in the next attempt.
- e. Repeat -- The trainee videotapes his performance during the refined learning episode; this process continues until the task performance is mastered.

Units were sent out at approximately two-week intervals contingent upon receipt of final response instruments completed for a previous unit. The sixteen units contained a total of sixty-four learning episodes which were designed around the basic objectives of the New Nursery School and are now available in a series of printed pamphlets (Nimnicht, McAfee, & Meier, 1969):

- 1. To develop a positive self-image;
- 2. To increase sensory and perceptual acuity;
- 3. To improve language skills, and
- 4. To improve problem-solving and concept formation abilities.

Each training unit included:

- 1. Four carefully prepared learning episodes to be used in the classroom.
- 2. A written explanation of the purpose of the four episodes, suggestions for how they are to be presented, and how they relate to other learning units,
- 3. A three-to seven minute sound and color 16 millimeter film clip of a model teacher or aide demonstrating one of the learning episodes,

received about the hardware. Can a group comprised largely of below-baccalaureate women with very little mechanical knowledge or interest successfully manage such elaborate equipment? It seems significant that adequate VTRs were received from isolated clusters of Indian ladies who were scattered from one end of their reservation to the other, a distance of about 150 miles. Portable generators supplied the electricity to some satellite locations. Arrangements for a telelecture to some satellites required installation of telephone service; other satellite communities had only one central phone.

With some notable exceptions and contrary to numerous predictions, the hardware aspect was not a serious stumbling block. The flustered, elderly teacher who accidentally plugged the camera power cord into the battery input of the monitor, only to watch the TV monitor flash and go up in smoke, found her first experience rather exasperating. An occasional broken tape and one incidence of a gob of tape that was literally consumed by the totating recording heads, to the utter destruction of both, taught dramatically that one should not shift from "fast forward" to "reverse" without allowing the videotape to stop moving before changing directions.

In some satellites the trainees transported, set up, and operated the equipment themselves; in others a special person was assigned to manage the equipment and to resolve related logistic problems. The transport of one of the VTR systems in the back of a pickup truck over miles of dirt road each week finally rendered it inoperable due to dust and alignment problems. To avoid such problems in the future, it seems advisable to identify a person who is responsible for transporting the equipment in a closed and padded vehicle. When a person was identified in each satellite as a kind of coordinator responsible for

4. A ten minute length of videotape.
5. Instructions for the use of the training unit, including observation procedures to enable the trainee to focus on significant aspects of each episode, and
6. Critique and response instruments for the trainees to provide feedback information to the developers of the learning episodes.

Each training unit's instructions told the trainee to:

1. Read the written material that explains the purpose of the four learning episodes,
2. View the filmed example demonstrating the use of one of the episodes,
3. Try each of the episodes with one to several children and VTR at least one of the attempts,
4. View the results and compare them with the filmed and/or written sample, and
5. Fill out the critique and response instruments and mail them along with their VTR to the research center.

A staff member at the training center viewed the videotaped and completed a second copy of the same critiquing instrument as the trainee submitted. These responses were returned to the trainee with the VTR so that the VTR could be reviewed and the critique read simultaneously. That same videotape was then used for recording the next lesson.

Each student was eligible for five quarter hours of credit for the successful completion of the orientation program plus satisfactory completion of the fifteen remaining instructional units and the creation of one acceptable self-styled unit. Numerous inquiries were

scheduling, logistics, encouragement and general liaison between the center and the satellite, the training went more smoothly than where no one was responsible. The learning from microtraining has better retention and transfer when the training experiences are conducted in the same setting where actual performance is later expected. The training schedule must be flexible to allow trainees to complete each training unit. For example, the sixteen original units should have been spread out over approximately eight months instead of six months.

Some delays were attributable to the inaccessibility of some trainees moved faster than anticipated, and did not get materials for subsequent units as rapidly as they could have used them. Individualized adjustments in mailing sequences, however, and in critiquing and feedback efficiency enabled most trainees to proceed at their own rate. Perfectionists were unwilling to relinquish the equipment to the next person until their performance was perfect in their own eyes. There were delays with trainees who were not prepared to record when the equipment arrived.

An alternative to having all the microtraining VTRs sent to the training center for monitoring would be to put the satellite coordinator in charge of critiquing at his satellite. The coordinator would conduct most of the critiquing sessions on-site, sending only a random sampling of VTRs to the training center for quality control purposes. This would require that the satellite coordinator be thoroughly trained in critiquing and other operational procedures before assuming such responsibilities.

Many trainees failed to complete all sixteen units of the training course. Others who did complete them were rather pressed for time and, in some instances, finished the last several lessons in considerable haste, causing this writer to question whether the effects will be as long lasting as hoped. Nevertheless, there was sufficient evidence that even those persons who completed the last few units hastily or failed to complete all units still had an adequate notion of the terminal objectives of each unit and knew how to accomplish these.

Although there are no hard data to confirm this hypothesis, it is submitted that those ten who dropped out before completing more than five of the units were either closed to new experiences, unsympathetic toward the general philosophy of the content of the training course, or perhaps unduly threatened by the whole innovative procedure. When training is somewhat self-pacing, and credits are contingent upon mastery of program objectives, numerous individual differences arise.

The effectiveness of the training program was assessed by measuring the teachers' attitudes (Harvey, 1966), obtaining opinions about the method of training, and by observing changes in teachers' cognitive and affective behavior through analysis of the microtraining critique instruments.

The classroom performance of the experimental group of trainees was compared with the performance of a similar control group which received eight weeks of traditional training. The control groups received the written descriptions of the learning episodes, but did not view film clips of model teaching nor did they experience the microtraining process. Due to the unforeseen discontinuance of the traditional training programs and the consequent unavailability of funds

and staff for the followup several months after training was complete, such a comparison between the experimental and control groups was not possible.

The subject matter in the sixteen units used for this first venture is sufficiently unique and identifiable to facilitate evaluation of the technique's effectiveness, using trainees as their own controls. The trainees showed growth toward prescribed terminal behaviors on both the cognitive and attitude tests which were administered at the beginning and end of the program (Meier and Brudenell, 1968).

Some Current Applications

A training program utilizing improved procedures developed in the aforementioned tested model is currently being conducted under the auspices of the Education Personnel Development Act. Eighteen teacher/aide teams in six early childhood education programs throughout the U.S. are receiving a one-year, inservice training experience by means of filmed learning episodes, VTRs of their efforts to recreate the learning episodes in their own locations, and supervision and critiquing provided by their satellite coordinating teacher/aide team and the E.P.D.A. staff at the John F. Kennedy Child Development Center at the University of Colorado Medical Center in Denver.

After watching a filmed learning episode, which varies from three to nine minutes in length, and reading the accompanying written materials, the teacher and/or aide tries to accomplish the prescribed objectives of the episode by translating the suggested procedures into their style and by using the total process with one to several learners at a time. After recording and evaluating their VTRs, the coordinating

team critiques them and in turn mails representative VTRs to the JFK Center where quality control is exercised. When the coordinating team is satisfied with the understanding and behavior regarding any given learning episode, the next unit is begun. The coordinating teacher/aide team submits its own VTR efforts to the JFK Center for critiquing. Credit is granted for participating in this training institute.

Eight traditional units are being prepared for field-testing this year. Their content extends the existing sixteen units' curriculum and focuses on the prevention of potential individual learning disabilities in high-risk preschoolers. Much of the preventive methods and materials is applicable to the remediation of specific learning disabilities in primary school children.

The Department of Pediatrics at the University of Colorado Medical School uses the VTR medium in the junior clerkship training of medical students who are learning to give physical examinations, obtain medical histories, and interview patients in hospitals throughout Denver. The VTR captures the many subtle nuances of nonverbal communication between the physician and patient and enables the student to sharpen his clinical sensitivity to the significance of this unspoken language. It permits the busy faculty preceptor to critique the student's performance at a time and place more convenient to the former. Many of the medical students and paramedical aides are learning how to administer the Denver Developmental Screening Test (Frakenburg & Dodds, 1968); because of its growing popularity around the U.S., VTR and filmed programs are being developed to span the distances and to train large numbers of professional and paraprofessionals.

The JFK Child Development Center is a university-affiliated center for comprehensive interdisciplinary service, training, and research programs for developmentally handicapped children. Many children are referred to the JFK Center and other components of the Medical Center because of specific learning disabilities. The typical complexity of these cases, many of which are now being evaluated at the JFK Center's Learning Disabilities Clinic, requires the best collective thinking from experts in many disciplines, including audiology, education, neurology, nutrition, nursing, occupational therapy, etc. Although it might be desirable, it is not feasible for these persons to take the time required to visit and observe a given child in school, where the problematic behavior occurs. However, it is possible for an educator or other trained individual to travel to the child's school and to make a representative on-site VTR of the child in various school situations and to present this as evidence of the actual learning behavior in question. The interdisciplinary sophistication of the Learning Disabilities Clinic staff then can be efficiently and conveniently brought to bear upon a twenty-minute, time-sampled (composite of several shorter vignettes taken over a longer period of time) representation of the child's real learning behavior. Having the child's teachers participate in such a case review also serves as an additional training experience for members of all disciplines present.

In addition to the Learning Disabilities Clinic conducted at the JFK Center, a library of VTRs depicting various learning and related developmental disorders is accumulating for use in inservice training of persons from multiple disciplines. The interaction between teachers with their built-in normal frame of reference and, for example, neurologists with their orientation toward pathology can be enlightening to

both. Thus, various interdisciplinary workshops and short-term courses, using a case study approach, are being developed and packaged for export to persons throughout the country.

Microtraining methods and materials to enable teachers to better individualize instruction and to alert school-related professionals to the necessity of making their recommendations more practical is a primary objective of such sessions. Actually subjecting specific recommendations to trial with the child and making a VTR of the proceedings is a very dramatic way of demonstrating the relative efficacy of various recommendations and their relationship to diagnoses. Such a follow-up procedure insures realism in subsequent recommendations for classroom management of and remedial-diagnostic teaching for specific learning disorders. The subject matter is limited only by the trainer's imagination. A large repertoire of teaching/learning strategies for a wide variety of children can be modeled and eventually mastered by the trainees. Ultimately, a library of model film clips and/or videotapes will be generated which demonstrate how outstanding persons in different programs throughout the country manage various classroom learning situations and cope with individual learning disabilities.

An intriguing and controversial use of microteaching is as a remedial technique to help weak inservice teachers overcome their objectively delineated weaknesses. This encourages the identification of minimal competencies for such rewards as salary increments.

Admittedly, the task of defining effective teaching behaviors is difficult, and merit pay proposals have usually faltered on this point. However, the intuitive appraisal of teaching competence traditionally conjured up by supervising or cooperating master teachers (often the

blind leading the blind) is the bane of the existence, and even of the professional career, of many teachers and teacher trainees. Consequently, several teacher-training programs are introducing micro-training procedures as a regular part of the student-teaching experience; then the teacher trainee can expect, and even demand, more meaningful and objective feedback from his supervisor, as well as being able to take more knowledgeable advantage of instructional improvement opportunities.

Such empirical validation of lesson content and teaching strategies, gleaned from systematic pupil and colleague or supervisor critiques, serves to insure the teacher's optimal behavior for facilitating learning; repeated practice enables him substantially to enlarge his repertoire of alternative techniques for coping with a kaleidoscopic variety of situations. Using a medical analogy, Goodlad (1966) refers to the necessity of a well-stocked pharmacy for successful diagnostic and prescriptive teaching.

Suggested Applications

No significant studies seem to have been accomplished with regard to zeroing in on individual learners with the video camera as they cope with various problematic or self-discipline situations. Just as a teacher trainee can increase his repertoire of effective teaching strategies by observing himself and others in situations where various more or less effective approaches to given tasks or circumstances are demonstrated. The application of videotape recording techniques to explorations into the development and assessment of self-concept also seems to have a very promising future (Meier, 1967).

One of the greater current demands for highly trained persons is in the realm of management. Executive leadership ability, whether for an industrial, business, school, military, or service organization, is often an unknown quality in any given individual before he is given such responsibilities. Then he often is expected to sink or swim in accordance with his intuitive ability to lead people to acceptable performance for the organization. If he fails, there is little recourse, just as there was little preparation.

Simulation (Crawford, 1967), systems approaches (Tracey, et al., 1967), task analysis (Thomas, 1968), and team approaches (Bumstead, 1968, Blake & Mouton, 1968), have gained wide acceptance in training. Coupled with microtraining as herein described leadership qualities can be effectively developed and monitored in situations where erroneous decisions do not plunge organizations into financial or morale bankruptcy. Certain in-basket exercises (Sutton, 1968) have particular promise for improving managerial decision making. Mock meetings of boards, staff, faculty, and similar groups, when authentically portrayed by, say, a group of administrators in training who play the roles of typical board members, is a very effective means for improving real-life performance when the chips are down. Many sensitivity training experiences (Bamforth, 1967 and Cooper, 1967) also lend themselves to microtraining.

Other skills in facilitating inter-personal relations can be, and in some cases have been, programmed for microtraining. Examples of occupations requiring such training run a wide gamut: from bank employees to stewardesses, complaint department personnel to salesmen, clergymen to psychotherapists, lawyers to sergeants, nurses to undertakers. Parents are being trained to give their infants and toddlers specific kinds of intellectual stimulation to insure their optimal

growth and development.

There are also numerous occupations in which technical skills must be mastered and periodically updated. Repair and maintenance personnel can be trained to solve their problems in efficient ways by viewing films or videotapes which have been made by manufacturing experts. Delicate and complex procedures, from airliner maintenance to heart transplants, are amenable to microtraining dissemination for other practitioners to perfect before lives are risked with imperfect procedures.

Astronauts and athletes learn not only to perform their own respective tasks but also to work better as a team with their technical and/or human counterparts.

Conclusion

This paper has scarcely scratched the surface of the depths to which microtraining procedures might be taken. It has described a prototype model for remote supervision of a specific type of training and has suggested several analogous additional applications. In spite of the problems encountered in this effort, the procedure is recommended as a viable one to be exploited by training personnel in a multiplicity of situations.

REFERENCES

- Banforth, K.W. Some Experiences of In-Company T-Groups and Process Groups as Methods of Social Skill Training for Management. Industrial Training International, Nov. 1967, pp.480-82.
- Blake, R.P. & Mouton, J.S. Work Team Development. Training in Business and Industry. June, 1968, pp. 33-5.
- Bumstead, R.A. Polishing the Brass. Training in Business and Industry. June, 1968, pp.29-32.
- Cooper, B. Sensitivity Training and the Managerial Grid. Industrial Training International. Aug., 1967, pp.318-22.
- Crawford, M.P. Dimensions of Simulation. American Psychologist, 1967, pp.788-96.
- Frankenburg, W.K. & Dodds, J.B. Denver Developmental Screening Test. Denver, Colo.: University of Colorado Medical Center. Unpublished Manual, 1968.
- Goodlad, J. The Changing American School. Chicago: University of Chicago Press, 1966.
- Hart, G.E. CCTV in Training. Industrial Training International, May, 1968, pp. 220-22.
- Harvey, O.J. (Ed.) Experience, Structure and Adaptability. New York: Springer, 1966.
- Meier, J.H. Innovations in Assessing the Disadvantaged Child's Potential, Jerome Hellmuth (Ed.), in The Disadvantaged Child, Vol. I. Seattle, Washington: Special Child Publications, 1967, pp.173-99.
- Meier, J.H. Long Distance Microteaching. Educational Television, Vol. I, No. 1, 1968a.

- Meier, J.H. Rationale for and Application of Microtraining to Improve Teaching. The Journal of Teacher Education. Summer, 1968b, pp. 145-57.
- Meier, J.H. & Brudenell, G. Remote Training of Early Childhood Educators. Greeley, Colo.: Color. State College Child Study Institute, 1968.
- Meier, J.H. & McAfee, O., & Nimnicht, G.P. An Autotelic Responsive Environment Nursery School for Deprived Children. In Disadvantaged Child, Vol. II, Jerome Hellmuth (Ed.) Seattle: Special Child Publications, 1968
- Nimnicht, G.P., McAfee, O., & Meier, J.H. The New Nursery School. New York: General Learning Corp., 1969.
- Sutton, D.F. The In-Tray Exercise--A Management Training Tool. Industrial Training International. July, 1968, pp. 318-21.
- Thomas, C.A. The Application of Task Analysis in Specifying Training Requirements. Industrial Training International. March, 1968, pp. 128-31.
- Tracey, W.R., Flynn, E.G., Jr., & Legere, C.J. Systems Approach Gets Results. Training in Business and Industry. June, 1967, pp. 17-38.

PACKAGED SELF-INSTRUCTION MATERIALS FOR ISOLATED TEACHERS OF THE HANDICAPPED

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Introduction

The original design of this project was based on a recognition of the negative effects of isolation on teachers of the handicapped in remote rural areas. It grew out of long expressed concern over the inability of isolated special education teachers to keep abreast of current practices and trends as well as their lack of contact with others in this field.

Using the typical conference/workshop approach has been difficult and unsatisfactory. Distribution of written materials upon teacher request (another approach which has been tried) presupposes motivation, knowledge, and sophistication on the part of the teacher that often does not exist.

The need for a fresh approach to inservice training for isolated teachers was obvious, although the appropriate method or methods was not clear. Therefore, it seemed that the problem was one that could be approached best through innovative action research with funding under Title III of the Elementary and Secondary Education Act.

In seeking a new solution to a stubborn problem the project staff did not presume to have all the answers. However, investigation of the Audio-Digest approach successfully employed by over 30,000 physicians indicated that some aspects such as the use of audio-visual methods, were applicable to the problems of isolated teachers and could become the foundation for the innovative approach that was anticipated.

Therefore, during Phase I the energies of the project staff were directed toward a determination of teacher needs and toward a search for audio-visual materials which could be incorporated into a new approach to meeting isolated EMR teacher needs. A pilot model of a packaged self-instruction program was produced and field-tested with 15 teachers. The topic "The Development of Self-Esteem in the Elementary Educable Mentally Retarded Child" was selected as a top priority item by the 27 teachers and 21 administrators who participated in the needs assessment. Materials selected for use in the five units of the college level self-instruction program included cassette tapes, slides, and resource readings.

The primary focus of Phase II will be further exploration of the process involved in increasing the competence of teachers in the target population. Emphasis will be placed on refinement of the packaged self-instruction program as an effective product for implementing this process.

It is anticipated that a viable process will be developed during 1970-71. If so, during 1971-72 the third and final phase of the project will be devoted to extension of the packaged self-instructional approach to teachers of handicapped students other than the mentally retarded and to regular class teachers who wish to cross-train in special education. Effort will also be made to adopt and adapt the method into the Humboldt State College Teacher Education Program for college credit at both the pre-service and in-service levels. New objectives that become apparent during Phase II will also be considered for Phase III.

I. Evaluation of Activities
(Outline)

OBJECTIVE 1: THE PRIMARY OBJECTIVE OF THE FIRST PHASE OF THE PILOT PROJECT IS TO DEVELOP PACKAGED SELF - INSTRUCTION MATERIALS FOR ISOLATED TEACHERS OF EDUCABLE MENTALLY RETARDED CHILDREN.

Two criteria apply directly to assessment of project effectiveness in achieving this objective.

CRITERION A: Is the self-instructional package relevant to the high priority needs of teachers and administrators in the study sample?

Method of Evaluation:

1. Teacher-Administrator Survey of Needs.
2. Relationship of Lesson Content to Identified Needs.

CRITERION B: Does the informational content meet professional standards of persons experienced in the field of mental retardation?

Method of Evaluation:

1. Selection of Project Advisory Committee and external professional advisors to assist in the preparation and review of the model PSIP.
2. Evaluation of materials included in self-instructional package.

OBJECTIVE 2: THE PRIMARY OBJECTIVE OF THE SECOND PHASE OF THE PILOT PROJECT IS TO TEST THE APPLICATION OF THESE MATERIALS AND THIS PROCESS (PACKAGED SELF-INSTRUCTION PROGRAMS) TO TEACHERS OF EMR PUPILS IN THE PROJECT REGION.

CRITERION A: Do the self-instructional process and the informational content of the package meet with participating teacher approval?

Method of Evaluation:

1. Teacher rating scale completed at the conclusion of each lesson as well as at the conclusion of the complete PSIP.
2. Teacher comments obtained during field visitation and/or on cassette tape provided with the PSIP.

CRITERION B: Do the participating teachers compare the self-instruction experience favorably with comparable workshops, institutes, extension or summer courses?

Method of Evaluation:

1. Course evaluation scale to be completed by participating teachers (see Appendix H)

CRITERION C: Do administrators and supervisors approve of the program?

Method of Evaluation:

1. Course evaluation scale to be completed by administrators (see Appendix I)

I. Evaluation of Activities
(Description)

OBJECTIVE 1: THE PRIMARY OBJECTIVE OF THE FIRST PHASE OF THE PILOT PROJECT IS TO DEVELOP PACKAGED SELF-INSTRUCTION MATERIALS FOR ISOLATED TEACHERS OF EDUCABLE MENTALLY RETARDED CHILDREN.

CRITERION A: Is the self-instructional package relevant to the high priority needs of teachers and administrators?

Method:

Survey of Teacher - Administrator Needs

The eventual construction of instructional packages would be of little use unless they were relevant to identified needs. Therefore, the project staff conducted a careful survey of the felt needs of 27 EMR teachers and 21 administrators in four counties (Humboldt, Del Norte, Mendocino, and Lake), in order to select an appropriate topic for the initial package.

A survey model was developed by the project staff for use in a needs assessment. A list of specific factors related to the education of mentally retarded children was assembled using the following reports and curriculum guides:

Course of Study and Curriculum Guide-Tehama County, Ca.
Curriculum Guide, Humboldt County Schools Office, 1967
EMR Guidelines-Shasta County Schools, Ca., 1968-9
Guide for EMR Curriculum Development, North Caroline Public Schools
Report of Special Study Group, Laurel Ruff Center, San Juan Unified School District, Sacramento, Ca., 1966

These topics were subdivided into the following general areas of concern:

-Basic concepts for consideration in the education of the mentally retarded

- Curriculum
- Innovations in teaching
- Special problems

Each teacher and administrator was asked to check any item considered relevant to the EMR teachers' needs. The check list was completed during prescheduled conferences with the project staff. This personal contact provided an opportunity for comments to be added to the formalized survey responses.

In responding to the survey, both teachers and administrators demonstrated a common concern for the quality of the EMR child's educational experience. This was neglected in the personal comments regarding the serious need for better articulation with the special education program, and for further integration of the EMR student into the total school curriculum. Classroom management and the need for improved methods of assessing programs and individual learning within the special education classroom were also stressed.

However, the greatest common need was for assistance with problems related to the social and emotional growth of the retarded child. The development of an adequate self-image or self-concept was identified as the most critical factor in such growth.

More than fifty items were included in the teacher survey with approximately twenty of these repeated in the administrator survey. The following charts indicate areas of concern selected most often as critical needs and the number of teachers or administrators who made the selection. Each person surveyed was free to check as many items as he chose.

Teacher Needs Survey -- 27 Teachers Responded

Area of Concern	No. times chosen
Developing Appropriate Self-Image	25
Emotional Growth	23
Achieving Independence	21
Handling Hostility & Aggressiveness	19
Social Growth	19
Motivation	18
Living and Working Together	18

Administrator-Supervisor Survey-21 Administrators Responded *	
Area of Concern	No. Times Chosen
Social Skills; Responsibility	36
Effective Learning Situations	35
Management of Learning	31
Assessment of Learning	30
Multi-Media Approach	28

Method:

Relationship of Lesson Content to Identified Needs

Early in November the project evaluation committee reviewed the survey results and began the selection of lesson topics and materials to correspond with the survey findings. In order to direct the package contents toward the stated needs, the following lesson topics were included in the pilot PSIP:

1. Educational Rationale as it relates to the development of Self-Esteem
2. Assessment Procedures and their role in the development of Self-Esteem
3. Enhancing Self-Esteem through classroom management
4. The relationship between program budget and the development of Self-Esteem
5. Improving parent-teacher-child relationship; a critical factor in establishing Self-Esteem

As is evident from the titles listed above, each lesson was directed toward a critical factor in the development of self-esteem. The first three topics were selected from top priority needs identified by the teacher-administrator survey. The last two were added by the committee and staff when it was recognized that "program budget" and "parent-child-teacher relationships" were critical factors in the solution of the identified problems.

*Administrators were asked to check twice any item of unusual importance. Therefore, the number of times an item was chosen exceeds the number of participating administrators in this chart.

The identification of additional, related problem areas by the professional staff points up an inherent weakness of the survey approach to the identification of needs. It is altogether possible that those who are surveyed may answer honestly and to the best of their ability and yet leave critical factors unidentified through lack of information and/or insight. Therefore, survey data must be reviewed and interpreted by a skilled evaluation specialist.

When the survey data was reviewed by the staff and advisory committee, and the lesson topics and content were compared with the high priority identified needs, it was agreed that the constraints of Criterion A, Objective 1 had been met.

CRITERION B:

Does the informational content meet professional standards of persons experienced in the field of Mental Retardation?

Method:

Selection of Project Advisory Committee and External Professional Advisors

Exploration, identification and selection of devices, materials and supplies has been a continuing process during the pilot year of Packaged Self-Instruction Programs. The following committees were instrumental in assisting the project staff in the evaluation of all of the articles identified on the attached list.

PSIP Advisory Committee:

Mr. Donald Telford	Director, Local Educational TV (KEET)
Dr. Donald Mahler	Chairman, Division of Education and Psychology, Humboldt State College
Dr. Donald Bowlus	Professor of Psychology, Humboldt State College (Evaluation Specialist)
Mrs. Virginia Moore	Teacher Specialist (project staff)
Mr. David Passarell	Project Director (PSIP)

PSIP Teacher-Administrator Evaluation Committee

Mrs. Magee Hastins	Elementary EMR Teacher, Arcata, Calif.
Mrs. Daniel Forbes	Elementary EMR Teacher, Arcata, Calif.

Mrs. Karen King	Elementary EMR Teacher, McKinleyville, Calif.
Mrs. Ula Stewart	Elementary EMR Teacher, McKinleyville, Calif.
Mr. George Iberetta	Principal, Bloomfield Elem., McKinleyville, Calif.
Mr. Wm. Guimond	Principal, Morris Elem., McKinleyville, Calif.
Mr. Dewell Byrd	Coordinator, Special Educ., Humboldt County School

Further evaluation of devices, materials and supplies occurred through communication with California State Education Consultants, Bureau of Special Education, and the generous, volunteer services of interested, enthusiastic students at Humboldt State College majoring in the field of Education and Psychology.

Method:

Evaluation of Materials Included in the Self-Instructional Package

The PSIP staff has continually felt the need for selecting quality materials. This premise necessitated careful scrutiny of large amounts of both newly researched articles and those that have been around for some time. The PSIP staff searched in many and various places for relevant information and materials:

- Instructional Material Centers
 - County Schools Offices
 - Curriculum Libraries (State and College)
 - Private Vendors
 - Regional Educational Laboratories
 - Federal Education Agencies
- (See attached listing of articles and where they were secured)

It was from this listing of researched multi-media devices, materials and publications that final selection and adaptation of ingredients for the packaged self-instruction program occurred. Staff obtained samples of available materials and evaluated them according to their relevance to project goals, adaptability to packaging, significance of information, content, durability, cost, etc.

Cassette Tape and Recorder:

Objective

The general concepts of the main lesson topic are provided along

with a cassette tape recorder. Directions which help in the development of proper lesson sequencing are also taped. A blank portion of tape is provided for the evaluator's verbal response. In conclusion to each lesson, a summary of its global points are provided on tape.

Criteria	Low Cost Item (recorder)
for	Highest Fidelity in the low cost range
Selection	Durability
	Battery-operated for adaptability
	Compactness for easy packaging

The Evaluation-Rating Scale included with each lesson provided the following results:

- positive or negative responses to the device seemed to be colored by personal preference based upon familiarity and past experiences. (Individual responses can be viewed by reading through the data report section)

Slides and Slide Viewer:

Objective	To reinforce the verbal presentation of the lesson topic
	To illustrate key factors (e.g. topography of the area, teaching devices, etc.) that require visual presentation to be properly understood.

Criteria	Low Cost Item (viewer)
for	Durability
Selection	Highest Image reproduction in low cost range
	Quality slides
	Compactness for easy packaging

The Evaluation-Rating Scale included with each lesson provided the following results:

--most evaluators felt that better correlation between slides and dialogue is necessary. All aspects of the slide viewer seem to be satisfactory except for manual lever sticking sometimes. (Individual responses can be viewed in data report section)

Resource Readings:

Objective	Paperbacks and print-outs are included to extend and enrich the concepts presented with cassette tape and slides for those motivated to in-depth study.
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Criteria	Readability
for	Credibility
Selection	Relevance to the lesson topic

The Evaluation-Rating Scale included with each lesson provided:

Very positive responses on practically all printed matter, especially the

"paperback" booklets selected and included in various lessons.
(For individual responses, check data report section)

The criteria were strictly adhered to and the project staff and Advisory Committee feel that the pilot year project meets the requirements of Criterion B.

Further, it is the opinion of the Advisory Committee and of the professional advisors that:

- The informational content of the package is directed to a priority need.
- Multi-Media materials (cassette tapes, slides, printed materials) are utilized.
- The package is easily transported.
- Instructional devices (recorders, projectors, programmed materials, and supplies) are simple to use.
- The package is economical to produce.
- Lessons are the caliber of college course offerings.

Therefore, Objective 1 has been reached.

OBJECTIVE 2:

THE PRIMARY OBJECTIVE OF THE SECOND PHASE OF THE PILOT PROJECT IS TO TEST THE APPLICATION OF THESE MATERIALS AND THIS PROCESS (SELF-INSTRUCTION PROGRAM) WITH TEACHERS OF EDUCABLE MENTALLY RETARDED PUPILS IN THE PROJECT REGION.

CRITERION A:

Do the self-instructional process and the informational content of the package meet with participating teacher approval?

Method:

Teacher Rating Scale, completed at the conclusion of each lesson (including written and taped comments)

Fifteen teachers of elementary educable mentally retarded pupils were used to test the pilot PSIP. All had participated in the original survey of teacher-felt needs and all volunteered to serve as teacher evaluators. Each was asked to evaluate each lesson with a 5-point rating scale that was included in the package. Space was also provided on each evaluation sheet for written comments and

a blank cassette tape was provided for verbal feed-back.

Twelve teachers completed the rating scales, although all did not respond to all items. The teachers were largely enthusiastic about the process and the materials although several felt pressured for time to complete the lessons. Several have shared the package content with fellow teachers and administrators. As a result requests have been received for additional packages and demonstrations of the PSIP method and content.

The following charts are a summation of the data obtained from the lesson evaluations. Review of the data indicates that revisions should be made in some package materials. However, 447 of the 495 responses indicated that package items were "worthwhile" or "a must", indicating that the process and informational content of the package meet with participating teacher approval. Therefore, the constraints of Criterion A, Objective 2 have been met.

CRITERION B:

Do the participating teachers compare the self-instruction experience favorably with comparable workshops, institutes, extension or summer courses?

Method:

Course Evaluation Scale

Eight teachers completed the teacher evaluation form for the complete self-instruction program. Six of these had previous comparable in-service experience, e. g. workshops, extension courses, etc. Comparisons were made on a five-point rating scale comparable to a traditional grading system, with "A" equivalent to excellent, "B" equivalent to good, etc. Space for personal comments was also provided.

Reactions regarding both the self-instruction program and more conventional methods were generally positive. (A or B ratings) However, the packaged program received a somewhat higher proportion of "A" ratings. Review of that data, (including personal comments) indicates that the self-instruction experience compares favorably with other in-service experiences. Therefore, the constraints of Criterion B, Objective 2, have been met.

TEACHERS EVALUATION - SELF INSTRUCTION PROGRAM
8 Teachers Responded

Questions	Teacher Ratings				
	A	B	C	D	F
1. To what extent was the program relevant to your personal professional needs?					
PSIP	4	3	1	0	0
Comparable In-Service	1	5	0	0	0
<u>Comments:</u>	Had been looking for ways of assessing students that were meaningful. This stimulated my interest. Assessment is not super complicated, I realized. It is looking at each student personally and his needs.				
2. How successful was the program in capturing and maintaining your interest?					
PSIP	5	3	0	0	0
Comparable In-Service	5	3	0	0	0
<u>Comments:</u>	In-Service program operated by pros; more effective in capturing interest. All the articles very informative and interesting to me. Pleasurable to work with; couldn't give it full interest because of complications in District Internship Program which were surprising and unsettling.				
3. How do you evaluate the professional quality of the program content, E.G. quality of printed references, films, tapes, etc.?					
PSIP	5	2	1	0	0
Comparable In-Service	0	4	1	0	0
<u>Comments:</u>	The kit quality is good but it lacks the professional touch of AV experts. The quality of the slides does not justify the time spent, i.e. #25.-Material very informative and pertinent. My husband and I both read and enjoyed Psycho-Cybernetics.				
4. To what extent does the program content have immediate or direct application to your classroom?					
PSIP	3	5	1	0	0
Comparable In-Service	2	3	0	0	0

TEACHERS EVALUATION - SELF INSTRUCTION PROGRAM
8 Teachers Responded

Questions	Teacher Ratings				
	A	B	C	D	F
<u>Comments:</u> Good selection of materials. - The program is not geared to primary children in some areas, but the content of information for the teachers is excellent. - The article "About Me" is beautifully organized. - The content is of greatest importance in every classroom; not limited to Special Education. It should be available to <u>all</u> teachers for credit, either in-service or college. - Recent summer session went more in-depth. - I used many of suggested activities and those sample lessons that were relevant to my group.					
5. To what extent do you feel you have acquired significant new ideas, insights, or understandings?					
PSIP	2	4	2	0	0
Comparable In-Service	2	3	1	0	0
<u>Comments:</u> In-service experience exposed me to new ideas presented in self-instruction program. - I have learned much from the articles presented in the program. I would like to have them. May I order them? - They may not be new ideas, but they bring you to focus on an important part of learning and/or teaching. - New ideas triggered more ideas; exciting! I.Q. in relation to my students gives me hope EMR can and will learn.					
6. As a result of the program, have you been stimulated to seek more information on any of the ideas presented?					
PSIP	2	4	2	0	0
Comparable In-Service	2	3	1	0	0
<u>Comments:</u> I would most certainly like to have the books for further in-depth study. - Yes, more assessment procedures and other ways to see children; it's been enlightening and fun.					
7. To what extent are you satisfied with the self-instruction procedure used?					
PSIP	6	1	0	0	0

Questions	Teacher Ratings				
	A	B	C	D	F

Comments: I found it smooth, well organized and in logical sequence with really worthwhile things to try. - So convenient! It is the type of program that you pick up and put down anywhere at any point. That is a necessary feature, in my opinion. - I felt the program is tremendously worthwhile. - The procedure has tremendous implications for expansion (areas of instruction) for individualized adult self-instruction.

ADDITIONAL QUESTIONS

1. Would you repeat such an experience on additional topics?

Definitely yes	7
Yes, with reservations	1

Comments: If I had more time to devote to it! The topic would continue to be the deciding factor in selecting any further instruction. I enjoy learning while sitting on my hill overlooking the valley, surrounded by beauty, birds, beetles and the kit - it's the only way!

2. Does it seem reasonable that this method would reduce hazard of traveling long distances ?

Yes	8
No	0

3. Does it provide for flexibility in learning?

Yes	8
No	0

4. Do you think it will help reduce for teachers the continual rise in cost of education?

Yes	6
No	1
Don't know	1

5. Would it be a new and satisfactory way to secure credit for college work?

Yes	8
No	0

TEACHER COMMENTS

Convenience is terrific! Tape recorder excellent - well done; nice to be able to play over new thoughts; easy to listen to. Slides good but not necessary for understanding of the lesson.

Offers new teachers to survey many problems, provided review for experienced teachers. Lacks opportunity for direct sharing but minimized by taped (?) and phone calls. Altogether a great idea.

Approach to subject matter and content was strong; musical background added to interest and quality of program. Suggested time for study was more than adequate. It sure was a fun way to learn more about our field and get new ideas. Thanks for the work!

Information in pamphlets very complete and concise. Good pocket books. Tapes pleasant to listen to. Worthwhile topics. Interview tape hard to understand. Slides are not correlated with tape. They don't make much sense.

Perhaps more method instruction would be helpful. How do I do this, especially, how do I incorporate these new ideas? I would prefer filmstrips rather than slides, more children may be served in this manner. I had a problem with recorder. Don't like packets - need another method of correlating the articles, but material presented is just wonderful!

Tapes and slides do not seem as well coordinated as they might be. Packet system could be refined. Color coding may be the answer. Response space on tape could follow each lesson. Lessons, packets, slides and tapes could be color coded to identify at a glance. Quality of material is "very good" to "excellent." Mechanical changes suggested to improve implementation.

Strongest lesson is lesson 5. It is so important to know how to deal with parents. Lesson 1 much needed on self concept of which we sometimes lose sight. Needs: evaluation of child (report to parents) (teacher self-evaluation). Try other makes recorders and viewers (2 slides went thru often; record does not work on outfit in my kit).

Lessons logical - makes statements; follows through with information. Portrays way to improve and assess self-image (the theme). I found it exciting and informative. Would enjoy a kit with more detailed lesson plan ideas, however, this set me thinking, revising, expanding teaching of reading, math. I have some ideas on creative writing with EMRs which shows self-image of students. Add Sp. Ed. insert to cum folders to grade by and decide level of achievement. Had trouble with record on tapes.

Musical Background

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	57	10	9	27	11	2
Lesson I	12	1	3	6	2	1
Lesson II	12	1	3	5	3	0
Lesson III	11	0	2	6	3	0
Lesson IV	11	4	0	5	2	0
Lesson V	11	4	1	5	1	1

Comments: Some of the music is not quite appropriate and sometimes dominates lesson.

Fidelity of Tape

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	57	8	17	30	2	0
Lesson I	12	0	4	7	1	0
Lesson II	12	0	6	5	1	0
Lesson III	11	1	4	6	0	0
Lesson IV	11	3	1	7	0	0
Lesson V	11	4	2	5	0	0

Comments: Poor tape at beginning
Tape not operating on lesson IV for one teacher
Fidelity of recorder great- Physical operation somewhat confusing

Quality of Vocal Presentation

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Total	57	7	18	31	1	0
Lesson I	12	0	5	6	1	0
Lesson II	12	0	5	7	0	0
Lesson III	11	0	5	6	0	0
Lesson IV	11	3	1	7	0	0
Lesson V	11	4	2	5	0	0

Comments: None

Practicality of Topic

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	57	5	29	18	5	0
Lesson I	12	0	6	4	2	0
Lesson II	12	0	5	5	2	0
Lesson III	11	0	6	4	1	0
Lesson IV	11	2	7	2	0	0
Lesson V	11	3	5	3	0	0

Comments: None

Continuity of Information

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	57	5	20	31	1	0
Lesson I	12	1	6	5	0	0
Lesson II	12	0	3	8	1	0
Lesson III	11	0	5	6	0	0
Lesson IV	11	2	3	6	0	0
Lesson V	11	2	3	6	0	0

Comments: None

Acceptability of Rating Procedure

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	57	10	11	30	3	0
Lesson I	11	0	1	8	2	0
Lesson II	11	2	3	6	0	0
Lesson III	11	1	3	7	0	0
Lesson IV	11	3	2	5	1	0
Lesson V	10	4	2	4	0	0

Comments: Not necessary to have such detailed rating - materials either acceptable or unacceptable

Relevance and Quality of Slides

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	47	10	12	19	9	2

Lesson I

#4 Negative) Emotions)	12	0	3	5	4	0
#6 Positive) Emotions)						

#10 Summary Slides	12	1	3	2	3	0
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Lesson II

#13 classroom slides	12	3	2	4	0	0
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Lesson IV

#20 equipment slides	11	3	1	5	2	0
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Lesson

#25 printed slides		3	3	3	0	2
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Comments:

Article 13: Slides need instruction as to use and correlation. Article 25: Should be discontinued. Anything that can't be easily read should not be included. In smaller segments an increased number of slides, the permanent file might have been expanded.

Articles 4 and 6: More original classrooms or other scenes. Article 25: Too small to read - permanent file should be included, itself. A most important area of the kit.

Article 4 and 6: Slides are without purpose unless guided in some manner.

Paper Backs

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	24	2	14	8	0	0
Quality	12	10	7	4	0	0
Relevance	12	1	7	4	0	0
<u>Comments:</u> <u>Article 5</u> (Argyle) very interesting and worthwhile. I wish to order a copy.						

Activity Materials

	Responses	Can't rate	A "Must"	Worthwhile	Fair Value	Discontinue
Totals	56	0	20	27	9	0
#14 Learning About Children (informal tests)	12	0	3	5	4	0
#18 Sample Daily Program	11	0	3	6	2	0
#18 About Me	11	0	4	6	1	0
#18 Social Maturity						
#18 Short Session Activities	11	0	4	5	2	0
#18 Listing of Vendors	11	0	6	5	0	0
<u>Comments:</u> Tests in <u>Article 14</u> are more geared to intermediate and secondary EMR. Tests are excellent for teacher as well as child <u>Article 14:</u> Looking for ways to assess children on individual bases (not standard IQ) I find these invaluable. Cheers! IQ tests are "IT" in my district. I find these forms real and human.						

Print - Outs

	Responses	Can't rate	"A Must"	Worthwhile	Fair Value	Discontinue
Totals	92	13	43	33	3	0
7 Transfer of Attitudes	12	1	6	4	1	0
8 Adequate Self-Concept	12	1	6	4	1	0
12 Intelligence Tests	12	0	7	5	0	0
15 Grouping	12	1	5	6	0	0
21 EMR Budget	11	2	4	5	0	0
22 Excess Costs	11	2	5	4	0	0
24 Parental Concern	11	3	5	2	1	0
26 Miscellaneous	11	3	5	3	0	0

Comments: Article 24 very good - so desperately important for parents to accept. Article 26 very good! Article 12: Not enough emphasis can be given to Article 12. This area is so misunderstood in college courses and by educators and the general public alike. The IQ test is so misused. I use the forms in Article 14. They can be very valuable if used rather than poohed and tossed in a drawer as some teachers would do. Article 15 seems to have two statements impossible to carry out at once.

CRITERION C:

Do administrators and supervisors approve of the program?

Method:

Administrator and Supervisor Course Evaluation Form

A negative aspect of the evaluation section is the staff's inability to report definitely the reasons we received no responses from administrators and supervisors. It has been very difficult to assess why we received not one printed response from an administrator. We do know that several involved themselves in actually working through PSIP Lessons with their teachers.

We assume there were several reasons for no response on their part. These were:

1. The procedure was inadequately described and poorly placed within the PSIP.
2. Evaluation of PSIP was implemented so near the end of the school year that it was impossible for administrators to respond.
3. Teachers themselves either overlooked, were confused with what to do with that particular form, or chose not to share it with their administrator-supervisor.

II. PROJECT ACTIVITIES WHICH HAVE EXCEEDED OR HAVE NOT MEASURED UP TO EXPECTATIONS

Exceeded Expectations

We have received exceptional cooperation and enthusiasm from all of the teachers participating in this project.

The cooperation of administrators, their diligence and understanding in assisting with the scheduling and rescheduling of classroom visitations, orientation workshops, evaluation sessions, and provision for teacher substitutes has been outstanding.

We have received several appeals from outside the test region for similar kinds of service.

Secondary school personnel (special education teachers and administrators in the project test area) have consistently inquired why they have been neglected.

The involvement and interest of State College students who have become aware of and understand the implications of this approach to education training has been significant and hopeful.

Have Not Measured Up to Expectations

Objectives #3 and #4 have been deferred to a later phase of operation (third year) in lieu of two more pertinent concerns: preparation of packaged materials to meet other priority needs as expressed by priorities listed in original needs assessment; verification of the present program in these areas:

Practical application of the "packaged" content both for the teacher's own growth and for that of her children.

Comparison with more traditional methods of in-service training (extension courses, short term workshops and conferences, college course offerings, and regular correspondence courses)

Detailed testing of project effects upon children and teacher have not measured up to expectations.

A by-product of the project, a collection of microfiche materials on various aspects of EMR training programs, has not been utilized to any considerable extent. All target people have knowledge of the collection. It is quite possible that inaccessibility of microfiche readers in most isolated areas discourages any attempt to use the materials; further, interest in its use is minimal because of the frequently technical

language of the programs described and simply because it is a new, untried device of which people in the area do not appreciate the value. If this material is to be made practical, the problem is chiefly one of dissemination.

III. EFFECT OF PROJECT ON EDUCATIONAL INSTITUTION

As expressed in the original submission of this project, the isolation of rural teachers of EMR students has made it most difficult for them to stay abreast of newly developing methods in dealing with the handicapped. In receiving the survey reports from the PSIP staff, isolated teachers were able for the first time to see the commonality of their needs. The on-site visitations under taken by PSIP have provided the teacher participants in the project with the expectation that they may be introduced to a practical method by which they can educate themselves to the new methods of approaching common problems when instructing EMR students.

As for the production of the self-instructional units, one complete program with five component parts has been completed. This program, directed at the most pressing need of increasing student self-esteem, has from preliminary reports (See Appendix, Article J) been met with overwhelming approval, and with expectations for future high quality programs.

IV. EFFECT OF PROJECTION COOPERATING AGENCIES

Perhaps the most significant cooperation in this project has come from members of the Department of Education and Psychology at Humboldt State College. The consulting services of Dr. Donald Mahler (former Director of Special Education at the State level) and Dr. Don R. Bowlus have been invaluable in the production and design of this project. Drs. Bowlus and Mahler, as well as Dr. Jack Shaffer, have also expressed their intent to test out the materials produced by PSIP in their classes. It is their wish not only to test the appropriateness of this material as a pre-service instructional unit for teachers of the mentally retarded, but also to test out the appropriateness of design for possible use as a method of reaching isolated teachers of normal students.

Two other organizations have also been very cooperative. The Instructional Materials Center of California has been a consistent aid in the location of needed materials for the Self-Instructional Packages. They also have shown positive interest, through a representative, in demonstrating the value of PSIP material.

The Co-Ordinator of Special Education for Humboldt County has requested that a number of MR teachers in Eureka evaluate the PSIP program.

The participants in this project include LEAs from Del Norte, Lake, Humboldt, and Mendocino counties. All are united in their isolation and need for in-service training. The specific LEAs presently active

and unchanged in the program are:

Ukiah Unified School District

Union Elementary School

Willits Unified School District

Fort Bragg Jr. High School

Lucerne School

McKinleyville Union School District

Arcata School District

Del Norte County Unified School District

South Bay Union School District

Rio Dell School District

V. PROJECT DISSEMINATION

The PSIP project has consistently viewed itself as a three-year program. The first year was devoted to needs assessment and initial design and development of the first self-instructional package. During the first year of the project, dissemination has not been viewed as a critical factor in the success of the program. However, demonstrations of the first complete self-instructional unit are being disseminated through the Bureau of Exceptional Children, and the California Instructional Materials Center.

As PSIP continues over the next two years, with the completion of each succeeding program, dissemination will become of critical importance. Presently it is planned that completed programs will be distributed through the following organizations:

California Council for Exceptional Children

Northwest Regional Educational Laboratory

Instructional Materials Center at the University of Southern California

California State Department of Education-Bureau of Special Education

California State Clearing House for the Blind

California North Coast Four-County Superintendents
Association

North Coast P.A.C.E. Center

VI. FEDERAL SUPPORT

The PSIP program is essentially involved with the production of a training process (self-instructional units for isolated teachers). The continuation of this project for the remaining two years will ensure the full production, dissemination, and testing of all self-instructional units. At the completion of the three-year program, all specific goals will have been met, and no need of further financing will be necessary.

However, if federal funding is now cut, all that has been accomplished, and all that which is planned will have been lost. All too often rural students and teachers have been denied services that are rightly theirs because their isolation makes delivery most difficult.

The individuals who have committed their time and effort to testing the pilot project materials must be protected from dismay, loss of hope, and loss of service which would result. If federal project funds were discontinued at this time, we know local school districts could not assume the financial burden entailed in completing this program.